

**Final**

**Five-Year Review Report**

**Second Five-Year Review Report**  
**Groundwater Operable Unit**  
**for**  
**Joliet Army Ammunition Plant (JOAAP)**  
**Wilmington, Illinois**

**Contract Number: W912QR-08-D-0009**  
**Delivery Order 0002**

**August 2009**

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**Site Manager/Commander's Representative**

## ***Certification 4***

### **CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW**

#### **US Army Corps of Engineers LOUISVILLE DISTRICT**

The firm of AEROSTAR has completed the technical review of the Final Second Five-Year Review Report, Groundwater Operable Unit, for the Joliet Army Ammunition Plant (JOAAP), Wilmington, Illinois. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions; methods, procedures and material used in analyses; the appropriateness of data used and level of data obtained; and reasonableness of the results including whether the product meets the customer's needs consistent with the law and existing USACE policy.



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8/28/09

Date



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8/28/09

Date

Significant concerns and the explanation of the resolution are as follows:

None

A noted above, all concerns resulting from independent technical review of the project have been considered.



Principal  
K. Dawn Blackledge

8/28/09

Date



**Final**  
**Second Five-Year Review Report**

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## LIST OF ACRONYMS

AEROSTAR	Aerostar Environmental Services, Inc.
AMSL	Above Mean Sea Level
ARARs	Applicable or Relevant and Appropriate Requirements (NO REFERENCE to)
ASTs	Above ground storage tanks
BGS	Below ground surface
BNSF	Burlington Northern Santa Fe
BTEX	Benzene, toluene, ethylbenzene, xylene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulation
CHPPM	Center for Health Promotion and Preventive Medicine
COC	Contaminants of Concern
CV	Coefficient of Variation
CY	cubic yards
DNT	Dinitrotoluene
ESD	Explanation of Significant Difference
FFA	Federal Facilities Agreement
ft	feet
FOST	Finding of Suitability to Transfer
FS	Feasibility Study
FYR	Five Year Review
GMZ	Groundwater Management Zone
GOU	Groundwater Operable Units
GRUs	Groundwater Remedial Units
HMX	High Melting Explosive (Cyclotetramethylenetetranitramine)
HRS	Hazard Ranking System
IAC	Illinois Administrative Code
IC	Institutional Control
IEPA	Illinois Environmental Protection Agency
JOAAP	Joliet Army Ammunition Plant
LAP	Load-Assemble-Package
LTM	Long-Term Monitoring
LUC	Land Use Control
LUR	Land Use Restriction
MEC	Munitions and Explosives of Concern
MFG	Manufacturing
MWH	MWH Americas, Inc.
MKM	MKM Engineers, Inc.
MNA	Monitored Natural Attenuation
mg/l	milligrams per liter
MMRP	Military Munitions Response Program
MNTP	Midwin National Tallgrass Prairie
NFA	No Further Action
NCP	National Contingency Plan
NPL	National Priorities List
NT	Nitrotoluene
O&M	Operation and Maintenance
OU	Operable Unit
PCB	Polychlorinated biphenyl

PCE	Tetrachloroethene
PL	Public Law
PRGs	Project Remedial Goals
R&D	Research and Development
RA	Remedial Action
RAB	Restoration Advisory Board
RAOs	Remedial Action Objectives
RCRA	Resource Conservation & Recovery Act
RD	Remedial Design
RDX	Cyclotrimethylenetrinitramine
RDX	a.k.a. Research Department Explosive or Royal Demolition Explosive
RGs	Remedial Goals
RI	Remedial Investigation
ROD	Record of Decision
SF	Square ft
SOU	Soil Operable Unit
SRUs	Soil Remediation Units
SVOC	Semi-volatile Organic Compounds
TCE	Trichloroethene
TNB	Trinitrobenzene
TNT	Trinitrotoluene
TOC	Total Organic Carbon
USACE	U.S. Army Corps of Engineers
USDA/FS	US Department of Agriculture/Forest Service
USEPA	Environmental Protection Agency
USTs	Underground storage tanks
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds

## EXECUTIVE SUMMARY

Past releases and disposal practices at the Joliet Army Ammunition Plant (JOAAP) have resulted in soil and groundwater contamination with explosives compounds, metals, organics, PCBs, sulfur and inorganic hazardous and non-hazardous debris. Cleanup activities have been ongoing at JOAAP for many years under various programs. JOAAP is currently being addressed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program as two National Priority List (NPL) sites; the Manufacturing (MFG) Area and the Load-Assemble-Package (LAP) Area. The LAP and MFG Areas were assigned United States Environmental Protection Agency (USEPA) Identification Numbers IL0210090049 and IL7213820460, respectively. A Record of Decision (ROD) to address the remediation of soil and groundwater as separate operable units (OUs) in both the MFG Area and the LAP Area was signed in November 1998. The goals set forth in the ROD were to eliminate or reduce the levels of contaminants to concentrations that are protective to human health and the environment. The remedy selected for the Groundwater Operable Unit (GOU) at JOAAP is monitored natural attenuation of contaminated groundwater.

Reviews are required for all sites where remedial action results in any hazardous substances, pollutants, or contaminants remaining at the site. These reviews are required every five years after the initiation of such remedial action, to assure that human health and the environment are being protected by the remedial action being implemented. The trigger date for the first Five-Year review was the initiation of construction activities at Site M4 on May 5, 1999. The trigger date for this second Five-Year review was the USEPA approval of the previous Five Year Review.

This review focused on the protectiveness of remedial actions for the GOU at the MFG and LAP Areas of JOAAP. The methods, findings, and conclusions are documented in this report. Recommendations are also presented to address all issues identified during the review. A separate five-year review has been submitted for the Soil Operable Unit (SOU) at JOAAP. The findings of this Five-Year review indicate that the remedy is complying with the requirements of the Record of Decision (ROD) and is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals, through natural attenuation. In the interim, exposure pathways that could result in unacceptable risks are being controlled and institutional controls (ICs) are preventing exposure to, or ingestion of, contaminated groundwater. During the first five-year review period for the GOU, final closure was approved for Site M10 – Toluene above ground storage tanks (ASTs), reducing the total number of sites in the GOU from 12 to 11. No additional sites reached remedial goals (RGs) for groundwater during the second review period. Soil Operable Unit (SOU) remedial action (RA) activities, were completed for 15 sites during the second Five Year Review period and will likely decrease the timeframe needed for the monitored natural attenuation remedy to achieve groundwater cleanup goals.

Issues identified for follow-up include recommendations for improved maintenance of the groundwater monitoring network, and better communications and recordkeeping for verification of ICs on transferred property. The next Five Year Review will be due on May 6, 2014.

## Five-Year Review Summary Form

<b><i>SITE IDENTIFICATION</i></b>		
Site name: JOLIET ARMY AMMUNITION PLANT		
EPA ID: IL7213820460 (MANUFACTURING AREA) IL0210090049 (LOAD-ASSEMBLE-PACKAGE AREA)		
Region: V	State: IL	City/County: WILMINGTON, WILL COUNTY
<b><i>SITE STATUS</i></b>		
NPL status: <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): <input checked="" type="checkbox"/> Under Construction <input checked="" type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete		
Multiple OUs? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Construction completion date: N/A
Has site been put into reuse? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
<b><i>REVIEW STATUS</i></b>		
Lead agency: <input type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input checked="" type="checkbox"/> Other Federal Agency U.S. Army		
Author name: Gerald B. Girardot		
Author title: Senior Project Manager		Author affiliation: AEROSTAR Environmental Services, Inc., USACE Consultant
Review period: 05/06/2004 to 05/06/2009		
Date(s) of site inspection: 10/21/2008 to 10/23/2008		
Type of review: <input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> Regional Discretion		
Review number: <input type="checkbox"/> 1 (first) <input checked="" type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
Triggering action: <input type="checkbox"/> Actual RA Onsite Construction at OU #____ <input type="checkbox"/> Actual RA Start at OU#____ <input type="checkbox"/> Construction Completion <input checked="" type="checkbox"/> Previous Five-Year Review Report <input type="checkbox"/> Other (specify)		
Triggering action date: 05/06/2004		
Due date (five years after triggering action date): 05/06/2009		

\* ["OU" refers to operable unit.]



## **Five-Year Review Summary Form, cont'd.**

### **Issues:**

Monitor well gauging reports included with the 2007 and 2008 Semi Annual LTM Reports indicate that almost all of the monitor wells accessed at this time have some degree of damage to, or deterioration in condition of, the concrete well pads.

The well casings to MW410 and MW411 in L3 are reported to be damaged, and neither well is equipped with a lock. The well casing to MW159 in M7 is reported to be damaged. MW803 and MW805 in M11 are not equipped with locks.

Recommendations in the previous Five Year Review to sample for sulfate at Site M8 MW361R have not yet been implemented.

Recommendations made in the previous Five Year Review to sample for VOCs at Site M7 MW124 for two consecutive sampling events have been at least partially implemented. MW124 was sampled for VOCs in May 2008. No VOCs were detected. No data is available to determine whether MW124 was sampled for VOCs in October 2008.

Annual status reporting for all transferred properties is not adequate to meet the requirements recorded on the initial transfer deeds between JADA and the U.S. Army. These reports, similar to those provided by CenterPoint Properties, are required to verify that they understand and are in compliance with the ICs and deed restrictions placed on their property.

### **Recommendations and Follow-up Actions:**

Repair and/or maintain well pads.

Repair well casings at MW410, MW411, and MW159. Install new locks at MW410, MW411, MW803 and MW805.

Sample monitoring well MW361R at Site M8 for sulfate.

Verify whether additional sampling is required at MW124.

Notify all property owners of record in areas subject to ICs to ensure and document that they have been made aware of the environmental condition of property, ICs, and of the duties and obligations imposed by the MOA.

Because remedial actions for the vast majority of Soil Operable Unit Sites were completed during the time between the First and Second Five Year Reviews, combining the documents for the SOU and GOU for the next Five Year Review should be considered to avoid unnecessary redundancy and present the data in an integrated format.

## **Five-Year Review Summary Form, cont'd.**

### **Protectiveness Statements:**

The limited action remedy, monitored natural attenuation, was chosen for the three GRUs in the GOU. Threats at the sites are being addressed through monitored natural attenuation and implementation of ICs. All immediate threats at the site have been addressed, and the remedy is expected to be protective of human health and the environment after the groundwater cleanup goals are achieved through MNA.

Deed restrictions are placed on properties as they are transferred from the U.S. Army to non-federal entities to prohibit the use of groundwater from all of the GRUs. Similarly land use restrictions are placed on property transferred to the USDA, as documented in the amendment to the Prairie Plan. Therefore, provided that these Institutional Controls (ICs) are enforced, there is no exposure pathway to impacted groundwater.

### **GRU1 (SITES L1, L2, L3, AND L14)**

The remedy for GRU1 remains protective of human health and the environment. Threats at the sites are being addressed through monitored natural attenuation. The SOU RA activities completed during the current and previous Five Year Review periods will likely reduce the predicted clean-up times required for contaminant levels in groundwater to drop below RGs. ICs documented in the amendment to the Prairie Plan will be implemented when the property is transferred to the USDA Forestry Service.

### **GRU2 (SITES M1, M5, M6, M7, M8, AND M13)**

The remedy for GRU2 remains protective of human health and the environment. Threats at the sites are being addressed through monitored natural attenuation and implementation of ICs. All of the RAOs set forth in the ROD have been fulfilled for the SOU at Site M8. The SOU RA activities completed during the current and previous Five Year Review periods will likely reduce the predicted clean-up times required for contaminant levels in groundwater to drop below RGs.

ICs have been implemented for Site M5 and for the transferred portions of Sites M7, M8, and M13. ICs will be implemented on the remainder of the property when it is transferred. ICs for M6, M7, and M8 have been developed by the U.S. Army and are described in the initial deeds. The ICs documented in the amendment to the Prairie Plan will be implemented when Site M1 is transferred to the USDA Forestry Service. ICs for M13 will need to be developed to ensure that the landfill cap is not disturbed by site activities after it is transferred by the U.S. Army.

## **Five-Year Review Summary Form, cont'd.**

### **Protectiveness Statements:**

#### **GRU3 (SITES M3 AND M10)**

Threats at Site M3 have been addressed through monitored natural attenuation and implementation of ICs. The remedy for Site M3 remains protective of human health and the environment. All SOU RA activities were completed during the current and previous Five Year Review periods.

All of the RAOs set in the ROD for Site M10 have been met and the remedy is protective of human health and the environment. The Final Site M10 Closure Report was submitted in March 2003. ICs as described in the initial deeds have been implemented for the eastern part of Site M10. The ICs documented in the amendment to the Prairie Plan have been implemented for the western part of M10. The ICs documented in the amendment to the Prairie Plan will be implemented when Site M3 is transferred to the USDA Forestry Service.

### **Long-Term Protectiveness:**

#### **GRU1 (SITES L1, L2, L3, AND L14)**

Current monitoring data indicate that the remedy is functioning as required and the groundwater contaminant plumes remain on site, within their respective GMZs. Long-term protectiveness of the remedial action will be verified by continued LTM.

Long-term protectiveness requires compliance with effective ICs (or Land Use Controls). IC evaluation activities will be developed to ensure that effective ICs are implemented and that the ICs are maintained, monitored and enforced via long-term stewardship as well as maintaining the site remedy components. Annual review and reporting of the institutional controls will be needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the Site.

#### **GRU2 (SITES M1, M5, M6, M7, M8, AND M13)**

Current monitoring data indicate that the remedy is functioning as required and the groundwater contaminant plumes remain on site, within their respective GMZs. Long-term protectiveness of the remedial action will be verified by continued LTM.

Long-term protectiveness requires compliance with effective ICs (or Land Use Controls). IC evaluation activities will be developed to ensure that effective ICs are implemented and that the ICs are maintained, monitored and enforced via long-term stewardship as well as maintaining the site remedy components. Annual review and reporting of the institutional controls will be needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the Site.

## **Five-Year Review Summary Form, cont'd.**

### **Long-Term Protectiveness:**

#### **GRU3 (SITES M3 AND M10)**

Threats at Site M3 have been addressed through monitored natural attenuation and implementation of ICs. Long-term protectiveness of the remedial action at Site M3 will be verified by continued LTM. All of the RAOs set forth in the ROD for Site M10 have been met and the remedy is protective of human health and the environment. The Final Site M10 Closure Report was submitted in March 2003.

Long-term protectiveness requires compliance with effective ICs (or Land Use Controls). IC evaluation activities will be developed to ensure that effective ICs are implemented and that the ICs are maintained, monitored and enforced via long-term stewardship as well as maintaining the site remedy components. Annual review and reporting of the institutional controls will be needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the Site.

### **Other Comments:**

Trends in groundwater contaminant concentrations are likely to become better defined during the next Five Year Review Period due to the completion of source removal activities in the SOUs associated with the GRUs 1, 2 and 3. Continued communication with owners and operators of transferred properties is important to ensure that these entities remain familiar with and in compliance with the ICs and deed restrictions in order that the remedy remains protective.

## 1.0 INTRODUCTION

The United States Army has conducted a Second Five-Year Review of the remedial actions implemented at the Joliet Army Ammunition Plant (JOAAP), Wilmington, Illinois. This review was conducted from October 2008 through August 2009. This report documents the results of the review. The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify issues found during the review, if any, and identify recommendations to address them.

The United States Army is the lead agency conducting the five-year review. Aerostar Environmental Services, Inc. (AEROSTAR) is preparing this Second Five-Year Review report on behalf of the United States Army Corps of Engineers (USACE) pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

*If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

This requirement is further interpreted in the NCP; 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii) states:

*If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

This is the second five-year review for the Groundwater Operable Unit (GOU). The purpose of this five-year review is to determine whether the remedy at the site continues to be protective of human health and the environment. This review focuses on the protectiveness of remedial actions for the GOU at the Manufacturing (MFG) and Load-Assemble-Package (LAP) Areas of JOAAP. The methods, findings, and conclusions are documented in this report. Recommendations are also presented to address all issues identified during the review. A separate five-year review has been submitted for the Soil Operable Unit (SOU) at JOAAP.

The trigger date for the first Five-Year review was the initiation of construction activities at Site M4 on May 5, 1999. The trigger date for this second Five-Year review was the United States

Environmental Protection Agency (USEPA) approval of the previous Five Year Review, on May 6, 2004.

The findings of the First Five-Year review indicated that the remedy complied with the requirements of the Record of Decision (ROD) during that period. Final closure was approved for Site M10 – Toluene above ground storage tanks (ASTs) during the first five-year review period, reducing the total number of sites in the GOU from 12 to 11. One Explanation of Significant Difference (ESD) was issued to extend the Groundwater Management Zone (GMZ) at Site M1 – Southern Ash Pile. It was reported that the performance of the remedy was positively affected by the change in the GMZ boundary.

Soil remediation was completed at the majority of impacted sites at JOAAP during the second five-year review period. Soil remediation was required to address Contaminants of Concern (COCs) present as a result of historical activities at JOAAP. Although these remedial activities do not always result in immediate and positive impacts to groundwater, they are anticipated to reduce the time required for contaminants in the GOU to naturally attenuate and achieve the remedial goals. Details regarding the protectiveness of the remedy selected for the SOU at JOAAP are presented in a separate Five-Year Review.

The background and historical information provided in this report was derived from published reports completed for this site including, but not limited to, the Installation Action Plan for JOAPP, the 1998 and 2004 Record of Decisions (RODs), the USEPA Comprehensive Environmental Response, Compensation, and Liability Information System Envirofacts Warehouse Website, and the previous Five-Year Review.

## 2.0 SITE CHRONOLOGY

The chronology presented in Table 1 begins during early 1940s and ends at the time this report was prepared.

**Table 1 - Chronology of Site Events**

Event	Date
The JOAAP was constructed to manufacture, load, assemble, pack and ship bombs, projectiles, fuses and supplementary charges.	During World War II
Production of explosives halted; sulfuric acid and ammonium nitrate plants leased out; other production facilities put in layaway status.	1945
Production of explosives reactivated.	Korean and Vietnam Wars
Gradual decrease in production of explosives during the Vietnam War, then stopped completely.	1977
U.S. Army Environmental Center conducted Installation Assessment and reported potential environmental impacts at former industrial areas.	1978
Installation Restoration Survey conducted by Donohue and Associates and included soil, groundwater, surface water and sediment samples at the Manufacturing (MFG) and Load-Assemble-Packaging (LAP) areas.	1981-1982
Phase II investigation conducted by Donohue and Associates for additional data on previously sampled sites at MFG and LAP to assess off-site impacts. No off site contamination identified.	1983
Pre-remediation sampling at the Red Water Lagoon by Donohue.	1983
Uniroyal (JOAAP's operating contractor) conducted a remedial action to remove contaminated surface water and sediments from Red Water Lagoon at M7.	1983-1985
U.S. Army Environmental Hygiene Agency performed groundwater sampling at selected existing monitoring wells. This was part of JOAAP's Resource Conservation Recovery Act (RCRA) groundwater monitoring program at Site M13 and Red Water Lagoon M-7.	1983-1985
MFG Area at JOAAP proposed for listing on National Priorities List (NPL).	1984
Post-remediation sampling at the Red Water Lagoon by Donohue.	1985
LAP Area at JOAAP proposed for listing on NPL.	1985
Groundwater and surface water samples collected from previously sampled areas at MFG and LAP areas.	1985 and 1986
Dames and Moore presented groundwater and surface water data in a Site Assessment Report which discussed feasibility and need for remediation.	1986
Final NPL Listing for MFG at JOAAP.	1987
Dames and Moore conducts Phase I and II Remedial Investigations (RIs) at MFG Area. Eighteen study areas identified for investigation.	1988-1993
Final NPL Listing for LAP at JOAAP.	1989
Federal Facilities Agreement (FFA) between the U.S. Army, USEPA,	1989

**Table 1 - Chronology of Site Events**

Event	Date
and Illinois Environmental Protection Agency (IEPA) under CERCLA Section 120 and RCRA Sections 6001, 3008(h), and 3004(v). The FFA was to ensure investigations and remediation would be conducted.	
USACE investigated underground storage tanks (UST's) at JOAAP. One hundred seven USTs were identified, inventoried, and evaluated.	1989
Most USTs identified by USACE were removed.	1989-1993
Dames and Moore conducts Phase I and II RI's at LAP Area. Thirty-five study areas were investigated.	1991-1994
United States Army Center for Health Promotion and Preventative Medicine (CHPPM) conducts ecological risk assessments to evaluate if site contamination is impacting ecological receptors.	1993 - 1996
United States Army CHPPM issues Phase I Ecological Risk Assessment Report.	1994
Baseline Risk Assessments conducted by Dames and Moore to quantify the potential human health risks posed by contamination identified by the RIs at the MFG and LAP areas.	1994 and 1995
Field Screening of soil for explosives. Results included in Feasibility Studies (FS).	1995
United States Army CHPPM issues Phase II Aquatic Ecological Risk Assessment Report.	1996
Preliminary Remediation Goals (PRGs) established based on the risk assessments by OHM.	1996
USACE conducted removal action for wastes at study area L2.	1996
USACE conducted removal action for polychlorinated biphenyl (PCB) switch boxes from MFG area.	1996
USACE conducted a removal action along Prairie Creek at Site L3.	1996
Public Law 104-106 of Fiscal Year 1996 Department of Defense Authorization Act legislated specific terms for conveyance of JOAAP to various entitles.	1996
USACE performed interim operation and maintenance (O&M) activities at the southern ash pile at area M1.	1997
USACE conducted a removal action for organics and PCB contaminated soil at area L6.	1997
Separate FSs prepared for the GOU and SOU for both the LAP (Dames and Moore) and MFG (OHM) areas.	1997
Proposed Plan for SOU and Proposed Plan for GOU prepared by U.S. Army to provide rationale for proposed remedies.	1997
Proposed Plan for SOU and Proposed Plan for GOU presented at a public meeting.	January 1998
Pre-Design Investigation activities including soil and groundwater sampling at MFG and LAP areas by MWH Americas, Inc. (MWH).	1998
ROD for SOU and GOU at MFG and LAP Areas is submitted by U.S. Army.	October 1998
Final Remedial Design (RD)/Remedial Action (RA) Work Plan for SOU and GOU submitted by MWH to USEPA and IEPA.	April 1999



**Table 1 - Chronology of Site Events**

Event	Date
Interim O&M activities conducted at Site M1 with cap replacement with an impermeable plastic liner.	April 28, 1999
Start of construction for Site M4 Soil Stockpile Area.	May 5, 1999
SOU and GOU Remedial Action Trigger (Start) Date.	May 5, 1999
Groundwater samples collected from identified site wells in the MFG and LAP Areas according to the RD/RA Work Plan.	June through November 1999
RA activities by MWH begin at MFG area Site M5.	July 7, 1999
RA activities by MWH begin at MFG area Site M6.	July 16, 1999
RA Activities at Site M5 to remove Soil Remediation Unit (SRU)1 and SRU3 contaminated soils.	July through November 1999
Semi-annual Groundwater Monitoring Report – Spring 1999 - submitted to USEPA and IEPA.	September 1999
Leachate collection and disposal activities begin at Site M9 as part of leachate control system O&M activities.	November 1999
Thirty-six monitoring wells abandoned in the MFG and LAP Areas. Abandonment reports were submitted in the Semi-Annual Groundwater Monitoring Report – Spring 2000.	December 1999, field activities. September 2000, reporting.
Ongoing soil bioremediation for explosives at Site M4.	1999 through 2004
Site M6 - Soil excavation has occurred intermittently at the Site; however, bioremediation, confirmatory sampling, and disposal performed almost continuously.	1999 through 2006
Annual Groundwater Monitoring Report – Fall 1999 -submitted to USEPA and IEPA.	January 2000
Groundwater samples collected from identified site wells in the MFG and LAP Areas according to the RD/RA Work Plan.	May and October 2000
Semi-annual Groundwater Monitoring Report – Spring 2000 - submitted to USEPA and IEPA.	September 2000
Submittal of Final Closure Report (for SOU) – Site M5.	December 2000
An enhanced temporary landfill cap installed at Site M9 Landfill to promote run-off.	2001
Annual Groundwater Monitoring Report – Fall 2000 -submitted to USEPA and IEPA.	March 2001
Twenty-six monitoring wells abandoned from the MFG Area. Documentation is provided in Semi-annual Groundwater Monitoring Report - Spring 2001.	March to May 2001, field activities. September 2001, reporting.
Groundwater samples collected from identified site wells in the MFG and LAP Areas according to the RD/RA Work Plan.	May 2001, semi-annual event. October 2001, annual event.
Soil excavation for bioremediation treatment for explosives from Site M7.	July through October 2001
Semi-Annual Groundwater Monitoring Report – Spring 2001 - submitted to USEPA and IEPA.	September 2001
Eighteen monitoring wells installed to replace previously abandoned wells in the MFG and LAP Areas. Documentation is provided in the Annual Groundwater Monitoring Report - Fall 2001.	September and October 2001, field activities. April 2002, reporting.

**Table 1 - Chronology of Site Events**

Event	Date
Submittal of PCB Sites Final Closure Report (for SOU). Sites L1, L7, L8, L9, L10 and L17.	December 2001
Annual Groundwater Monitoring Report – Fall 2001 -submitted to USEPA and IEPA.	April 2002
Groundwater samples collected by MWH from site wells in the MFG and LAP Areas according to the RD/RA Work Plan.	May 2002, semi-annual event. October 2002, annual event.
Soil excavation by MWH at Site M6 for bioremediation for explosives.	July through November 2002
Ordnance and explosives removed from LAP Area Sites L11 and L16.	August 2002
Three sumps and one concrete outflow removed from LAP Site L16.	August 2002
Explosives contaminated soil excavated by MWH at LAP Site L16 for bioremediation review of groundwater results.	October 2002
Semi-Annual Groundwater Monitoring Report – Spring 2002 - submitted to USEPA and IEPA.	November 2002
Arsenic contaminated soil excavated from LAP Area L11, confirmation samples collected, soil disposed of at Laraway Landfill in Elwood, Illinois.	October and November 2002
Approved explanation of Significant Difference (ESD) prepared by USACE for Site M1 to modify the Groundwater Management Zone (GMZ) boundaries, and submitted to USEPA and IEPA.	February 2003
Site M10 Final Closure Report (for GOU) submitted by MWH.	March 2003
Annual Groundwater Monitoring Report – Fall 2002 -submitted to USEPA and IEPA.	March 2003
Groundwater samples collected by MWH from site wells in the MFG and LAP Areas according to the RD/RA Work Plan.	May 2003, semi-annual event. October 2003, annual event
Semi-Annual Groundwater Monitoring Report – Spring 2003 - submitted to USEPA and IEPA.	October 2003
Submittal of Final Closure Report (for SOU) Site M7.	November 2003
Submittal of Final Closure Report (for SOU) Sites L11/L16.	December 2003
Well abandonment and replacement activities at Site M13. Documentation included as Appendix D of Fall 2003 Groundwater Report.	January 2004, field activities Reporting – on-going
Submittal of Final Five-Year Review Report, Soils Operable Unit.	April 2004
Bioremediation Post Treatment Sample Frequency Reduction of Site M6 SRU3 Soils, Bioremediation Facility.	April 2004
Submittal of the First Five Year Review for the SOU and GOU.	May 6, 2004
ROD for Soil Operable Unit Interim Sites signed.	June 2004
Submittal of Sampling and Analysis Plan, SB-1 Treatment System, Site M4 Bioremediation Treatment Facility.	June 2004
Submittal of Draft Final Treatment Completion Report, SRU1 Tetryl Soils, Revision 1.	June 2004
Submittal of Stormwater Basin (SB-1) Discharge Exceedance Event and Corrective Action Report, Site M4 - Bioremediation Treatment Facility.	September 2004

**Table 1 - Chronology of Site Events**

Event	Date
Stormwater Basin (SB-1) Corrective Action Plan, Site M4 - Bioremediation Treatment Facility.	October 2004
Annual Groundwater Monitoring Report – Fall 2003 submitted to USEPA and IEPA.	December 2004
Submittal of Final FY2002 Bioremediation Report, Soils Operable Unit.	January 2005
2004 Incentive Fee Treatment Quantities, Site M4 - Bioremediation Treatment Facility.	March 2005
Conducted remedial action activities at Site L14.	July 2005 through August 2005
Conducted remedial action activities at Site L7.	July 2005 through February 2006
Conducted remedial action activities at Site L10.	August 2005 through September 2005
Final RD/RAWP, Site M9 - submitted by MKM Engineers, Inc. (MKM).	September 2005
Conducted remedial action activities at Site L8.	September 2005 through February 2006
Final Phase 2 - RD/RA Work Plan Submitted.	October 2005
Conducted remedial action activities at Site L1.	October 2005 through March 2006
Conducted remedial action activities at Site L9.	October 2005 through June 2006
Final RD/RAWP, Site L4 - submitted by MKM.	November 2005
Conducted remedial action activities at Site M9.	November 2005 through April 2006
Conducted remedial action activities at Site L4.	December 2005 through April 2006
Conducted remedial action activities at Site M2.	March 2006 through July 2006
Final Remedial Action Work Plan, Site M1 - submitted by MKM.	April 2006
Final Operation and Maintenance Plan Submitted by MKM.	May 2006
Submittal of Final Closure Report, Site M6, Soils Operable Unit.	June 2006
Conducted remedial action activities at Site M3.	July 2006 through September 2007
Conducted remedial action activities at Site M11.	July 2006 through December 2007
Final Remediation Action Work Plan Military Munitions Response Program (MMRP) Sites L2, L3, and L34 - submitted by MKM.	October 2006
Submittal of Final Closure Report (for SOU) - Revision I, Sites L1, L7, L8, L9, L10, L14, and M2.	October 2006
Conducted remedial action activities at Site M12.	November 2006 through September 2007
Final Explosive Safety Submission Amendment MMRP Sites L2 and L3 Buffer Zones and Site L34.	January 2007

**Table 1 - Chronology of Site Events**

<b>Event</b>	<b>Date</b>
Conducted remedial action activities at Site L2.	February 2007 through October 2007
Conducted remedial action activities at Site L23A.	April 2007 through May 2007
Conducted remedial action activities at Site L5.	June 2007 through 2008
Final L4 Remedial Action Completion Report submitted by MKM.	August 2007
Final M9 Remedial Action Completion Report submitted by MKM.	September 2007
Final M11 Work Plan submitted by MKM.	September 2007
Final Remedial Action M13 Work Plan submitted by MKM.	September 2007
Submittal of Draft Final Closure Report (for SOU), Sites L2, L5, L23A, M3, M4, and M12.	March 2008
Draft M11 Remedy in Place Report Submitted by MKM.	September 2008

## 3.0 BACKGROUND

### 3.1 GENERAL SITE BACKGROUND

This section provides a description of the site characteristics and the threat posed to the public and environment at the time of the initial Record of Decision (ROD). The background and historical information provided in this report was derived from published reports completed for this site including, but not limited to, the Installation Action Plan for JOAPP, the 1998 and 2004 Record of Decisions (RODs), the USEPA Comprehensive Environmental Response, Compensation, and Liability Information System Envirofacts Warehouse Website, and the previous Five-Year Review.

#### 3.1.1 Physical Characteristics

JOAAP is a former Army munitions production facility located on approximately 36 square miles (23,542 acres) of land in Will County, Illinois (**Attachment 1-1**). The site is located approximately ½ mile south and ½ mile west of the town of Elwood, Illinois, and approximately 3 miles north of Wilmington, Illinois. According to information provided by city-data.com, these communities had populations of approximately 2,300 and 6,000 residents, respectively, with population growths of 17 and 39 percent, respectively between 2000 and 2007. JOAAP is divided into two main functional areas by a State Road 53 (SR 53), with the MFG area to the west of SR 53 and the LAP Area to the east of SR 53 (**Attachment 1-2**).

The MFG Area comprises approximately 14 square miles (9,159 acres), and is where the chemical constituents of munitions, propellants, and explosives were produced. The production facilities were generally located in the northern half of the MFG Area. An extensive explosives storage facility was located in the southern half of the MFG Area.

The LAP Area comprises approximately 22 square miles (14,383 acres), and is where munitions were loaded, assembled, and packaged for shipping. The LAP Area contained munitions filling and assembly lines, storage areas, and a demilitarization area.

#### 3.1.2 Geography and Topography

The topography at JOAAP is gently undulating. In most areas of the LAP and MFG Areas, the land slopes towards Prairie Creek, with a general overall slope to the southwest, towards the confluence of the Des Plaines and Kankakee Rivers. Surface elevations range from up to 700 feet above mean sea level (AMSL) in upland areas of the northern LAP Area, down to as low as 515 feet AMSL in the southwest corner of the MFG Area, near the Kankakee River. The LAP Area drains via several creeks and ditches to the Kankakee River. The MFG Area drains via several creeks, ditches, and storm water conveyances to the Des Plaines and Kankakee Rivers. The Grant Creek and Prairie Creek basins cover the majority of the land area of JOAAP. Depending on the hydraulic conditions, the streams at JOAAP may either be net influent (gaining) or effluent (losing) with respect to the shallow aquifer.

JOAAP is located in an area termed the Central Lowlands Physiographic Province, which is typified by sub-horizontal carbonate and clastic sedimentary rocks. These sedimentary rocks are most often covered by varying thicknesses of sands, silts, and clays deposited during Pleistocene glaciation.

Two glacial deposits have been identified at JOAAP. The Henry Formation is 5 to 25 ft thick and underlies most of the central and western parts of the MFG Area. It includes sandy and gravelly silts and distinct beds of sand and gravel. The Wedron Formation is present in the upland area, east of the main part of the MFG Area and across the LAP Area. The Wedron formation is a till composed of clayey silt with minor sand. The combined thickness of both Wedron and Henry formations is reported to be generally less than 25 ft in the western part of the MFG Area, and 60 to 70 ft in the eastern part of the MFG Area.

The rock strata in the vicinity of JOAAP dip gently to the east at a rate of about 10 ft per mile. A previous investigation which included a photogeologic study concluded that there were two sets of bedrock fractures in the vicinity of JOAAP, a northwest-southeast set, and a northeast-southwest set. The frequency and orientation of these fractures could have a significant influence on the transport of contaminants within the dolomite bedrock. The Sandwich Fault Zone reportedly passes through the eastern portion of JOAAP, but is significantly north of the GOU and is not believed to have an effect on groundwater flow or contaminant transport in the Groundwater Remedial Units (GRUs).

Three groups of aquifers are generally recognized in the area including JOAAP. These include a surficial aquifer within the surficial glacial sediments, a shallow bedrock aquifer, and a deep bedrock aquifer. The shallow bedrock aquifer is composed of dolomites of Silurian Age and may underlie glacial sediments, or may be exposed at the land surface. The Silurian dolomite is typically between 50 and 100 ft thick in the study area. The Maquoketa Group is about 150 ft thick and it includes layers of low-permeability shale that serve as a regional aquitard and separate the shallow and deep bedrock aquifer systems. The deep bedrock system underlying the Maquoketa Group includes the Galena-Platteville Dolomite, the St. Peters Sandstone, and the Mt. Simon Formation, and supplies most of the groundwater used in northern Illinois.

Groundwater flow in the surficial and shallow bedrock aquifers at JOAAP is generally towards the west. The potentiometric surface across the facility varied significantly ranging from an elevation of 523 to 624 ft AMSL in October 2007. There was no significant change in elevation during April 2008 (524 to 630 ft AMSL).

### **3.1.3 Land and Resource Use**

In April 1993, JOAAP property was declared as excess by the U.S. Army. It is now being maintained by a small staff under liquidation status and is no longer capable of explosives production. JOAAP is undergoing transfer of use to other agencies and organizations in accordance with the Illinois Land Conservation Act of 1995, Public Law (PL) 104-106, Div. B, Title 2901-2932, February 10, 1996. This law states that the U.S. Army will transfer JOAAP land to various federal, local, and state jurisdictions. Transfer of land is occurring incrementally as it is remediated and is deemed appropriate.

### **3.1.4 History of Contamination**

JOAAP was constructed during World War II to manufacture, load, assemble, pack and ship bombs, projectiles, fuses and supplementary charges. Production output varied with the demand for munitions during the war years and all production of explosives ceased in 1945. At that time, the sulfuric acid and ammonium nitrate plants were leased out, and the remaining production facilities were put in layaway status. The installation was reactivated during the Korean War, and again during the Vietnam War. Production gradually decreased, and was stopped completely in 1977. Various defense contractors under facility-use contracts have utilized some areas of the installation subsequent to 1977.

During its operation, JOAAP was a large military industrial complex that handled, stored, processed, manufactured, and shipped numerous different hazardous chemicals and materials in very large quantities. Past releases and disposal practices at JOAAP have resulted in soil and groundwater contamination with explosives compounds, metals, organics, PCBs, sulfur and inorganic hazardous and non-hazardous debris. Contaminants were identified and characterized by a number of different site assessments and investigations conducted between 1978 and 1998, as summarized in the site chronology presented in Section 2.0. One of the Phase II studies (Donohue and Associates, 1983) evaluated the potential for off-site impacts, and concluded that no off-site contamination was identified. The history of contamination at specific sites is presented in Section 3.2.

The MFG Area of JOAAP was proposed for listing on the NPL in November 1984, based on a Hazard Ranking System (HRS) score of 32.08. The LAP Area was proposed for listing in April 1985, based on an HRS score of 35.23. Final listing on the NPL took place on July 21, 1987 for the MFG Area, and March 31, 1989 for the LAP Area. The U.S. Army, the USEPA, and the IEPA entered into a Federal Facilities Agreement (FFA) in 1989, pursuant to CERCLA Section 120 and RCRA Sections 6001, 3008(h), 3004(u), and 3004(v) (USEPA, 1989). The purpose of the FFA was to document that environmental impacts at the site would be investigated and that remedial actions would be taken to protect public health, welfare, and the environment.

Human and ecological risks associated with the contaminants identified at JOAAP were evaluated, and feasibility studies and proposed plans for cleanup were conducted and prepared during the time period leading up to the ROD. PRGs were established to identify the specific cleanup levels to remediate the sites to in order to be protective of human health and the environment.

The GOU and the SOU were established as separate operable units, to address remediation objectives at the site for groundwater and soil at JOAAP. The ROD for the GOU and SOU was finalized in November 1998. Several initial response/removal actions were completed to mitigate contamination during the period leading up to the ROD. These actions are summarized in Section 3.1.5.

The GOU includes all sites where impacted groundwater has been identified. Groundwater management zones (GMZs) were established for each GOU site identified in the ROD. The GMZs define boundaries in three-dimensional space that encompass impacted groundwater at each site. The horizontal boundaries of each GMZ completely contain the contaminant plumes

identified at each site, including an appropriate buffer allowing for potential plume migration. The GMZs include the glacial drift and shallow bedrock aquifers and are bounded vertically by the upper surface of the Maquoketa Formation.

The sites within the GOU are grouped into Groundwater Remediation Units (GRUs) according to contaminant type and geographic location. Three GRUs were identified in the ROD: two in the MFG Area and one in the LAP Area. The Feasibility Study (FS) Reports for the MFG and LAP areas were completed independently, and each area had a GRU designated as GRU1. The FS for the MFG area also had a GRU designated as GRU2. The GRUs identified in FS reports were re-designated in the ROD.

The designations provided in the ROD are as follows:

- **GRU1** refers to explosives in groundwater at Sites L1, L2, L3 and L14.

The primary contaminants of concern (COCs) at GRU1 are explosives, including 1,3,5-Trinitrobenzene (1,3,5-TNB), 2,4,6-Trinitrotoluene (TNT), 2,4-Dinitrotoluene (2,4-DNT), 2,6-Dinitrotoluene (2,6-DNT), Nitrotoluenes (2-NT, 3-NT, and 4-NT), and Cyclotrimethylenetrinitramine which is also known as Research Department Explosive or Royal Demolition Explosive (RDX)

- **GRU2** refers to explosives and other contaminants in groundwater at Sites M1, M5, M6, M7, M8, and M13.

The primary COCs at GRU2 are sulfate; explosives, including 1,3,5-TNB, TNT, 2,4-DNT, 2,6-DNT, nitrobenzene (NB), 1,3-Dinitrobenzene (DNB), RDX and High Melting Explosive (HMX) (Cyclotetramethylenetetranitramine); volatile organic compounds (VOCs), including tetrachloroethene (PCE); and metals, including iron, antimony, and cadmium.

- **GRU3** refers to VOCs in groundwater at Sites M3 and M10.

The primary COCs at GRU3 are VOCs including toluene and benzene.

Monitored natural attenuation was identified in the ROD as the remedy for all three GRUs. The groundwater remedy is also related to the source removal remedy that is addressed under the SOU. GOU monitoring well networks and GMZ boundaries are depicted in figures presented in relevant sections of **Attachment 1**.

It was determined that surface water does not pose a risk to health and the environment; therefore, it is not addressed further as a contaminated media. However, groundwater may discharge to surface water and cause localized detections of COCs in surface water under certain conditions at some sites within the GOU.



### **3.1.5 Summary of Initial Responses**

Residual soil contamination may represent an ongoing source of groundwater impacts; therefore, information pertaining to the conditions prevalent in the SOU at the time of the ROD has been included to provide a further explanation of the basis for GOU actions. A general summary of initial responses at JOAAP and the general basis for taking such actions is presented below. Site specific information is presented in Section 3.2.

A remedial action to remove contaminated surface water and sediment from the Red Water Lagoon located at Site M7 was conducted by Uniroyal, JOAAP's former operating contractor, from 1983 through 1985. A clay cap was installed over the former lagoon upon completion of the remedial action.

Most of the 107 USTs identified throughout JOAAP by the USACE in 1989 were emptied and removed between 1989 and 1993.

The USACE conducted three removal actions in 1996 and 1997, to prevent the migration of contaminants from the identified source areas. Wastes present in oil pits located at Site L2 were excavated and disposed, PCB switch boxes and impacted soils were removed from the MFG Area, and organics- and PCB-contaminated soil at Site L6 was excavated and disposed of in order to facilitate the transfer of the land in accordance with PL 104-106 from the U.S. Army to Will County for the purpose of establishing a landfill.

The USACE also conducted two interim actions to mitigate waste migration in 1996 and 1997. These interim actions included stabilization of the stream bank along Prairie Creek at Site L3 to prevent erosion of the bank and exposure of buried debris and wastes contained in the soil, and consolidation of wastes that had migrated from the southern ash pile (Site M1) and installation of a temporary geosynthetic cover to prevent leaching to groundwater.

Liquidation/demolition activities have been underway in the MFG Area at JOAAP since 1998. These activities have removed many property items and buildings and have potentially affected the extent of contamination previously determined in the RI and FS reports. Removal of structural foundation elements, building slabs, pavements and shelters can influence the transport of contaminants in soil and groundwater; however, the remedies selected for the SOU and GOU's accounted for potential changes in conditions that could be reasonably anticipated as a result of the ongoing liquidation/demolition and redevelopment activities.

### **3.1.6 General Basis for Taking Action**

The human health risk assessments identified a total of 79 COCs in soil and sediment, 40 COCs in groundwater, and 45 COCs in surface water at JOAAP. Explosives (primarily 2,4,6-trinitrotoluene (TNT), 2,4-dinitrotoluene (2,4-DNT), 2,6-dinitrotoluene (2,6-DNT), RDX, HMX, and tetryl) were the most prevalent COCs in each media. Other contaminants including metals, pesticides, PCBs, VOCs, and semi-volatile organic compounds (SVOCs) were also identified. According to the ROD, contaminants in surface water were found to pose no hazard to health and the environment. Therefore, surface water is not addressed further as a contaminated media.

Groundwater discharges to surface water may occur and can result in localized detections of COCs at certain sites within the GOU.

Based on information presented in the risk assessments, the principal threat to human health, results from potential exposure to explosives in soil. DNT is identified by USEPA as a probable human carcinogen, and both TNT and RDX are identified by USEPA as possible human carcinogens. The 1998 ROD for certain SOU sites and SRUs was interim. The final ROD for these sites was completed in June 2004, and established final remedial goals for soil that are compatible with development of the tallgrass prairie for sites that are to be transferred to the USDA and are protective of human health and the environment for that reuse scenario.

Risks and hazards for groundwater are calculated based on the assumption that contaminated groundwater is used for potable water supply using a commercial/industrial exposure scenario. This scenario is unlikely to occur because the majority of the contaminated groundwater resides in the glacial drift aquifer that does not provide usable quantities of groundwater and is not used for water supply at JOAAP. Furthermore, deed restrictions placed on contaminated properties transferred by the U.S. Army prevent the use of groundwater until cleanup levels are achieved. The remedy for the GOU at the JOAAP is monitored natural attenuation of contaminated groundwater.

Human health risk models and other appropriate USEPA and IEPA criteria were used to establish the RGs for each of the 40 contaminants of concern identified in the groundwater. IEPA Class I and Class II groundwater standards were used as the RGs for potable and industrial uses, respectively. Illinois Class I groundwater quality standards are applicable to contamination is present in the Silurian Dolomite and Class II groundwater quality standards are applicable to contamination is present in the glacial till.

Risk-based concentrations (RBCs) were developed and used as the RGs for contaminants without corresponding IEPA standards. The RBC calculations assumed that groundwater would be used by an industrial worker and used the  $1 \times 10^{-6}$  level for carcinogens and 1.0 level for non-carcinogens.

The contaminants presented in **Table 2** were identified as the prevalent COC in groundwater in the 1998 ROD:

**Table 2 – Critical Contaminants of Concern in Groundwater**

Explosives	Metals	VOCs
2,4-Dinitrotoluene	Iron	Tetrachloroethene
2,6- Dinitrotoluene	Antimony	Toluene
Trinitrobenzene	Cadmium	Benzene
Trinitrotoluene		
Cyclotrimethylenetrinitramine (RDX)		
Nitrotoluene		

Contaminated soils provide a potential source of continuing contamination to groundwater; therefore, source removal in the SOU was an important factor in the selection and success of the GOU remedy of monitored natural attenuation. Remedial activities in the SOUs are discussed in Section 3.2.

## 3.2 SITE SPECIFIC BACKGROUND INFORMATION

The following subsections provide a description of the individual sites of concern at identified GRUs at JOAAP. Site specific descriptions include the physical characteristics, land and resource use, history of contamination, initial responses, and basis for taking action at each site.

### 3.2.1 GRU1, Explosives – LAP Area

GRU1, Explosives in Groundwater, is entirely in the LAP Area and consists of separate plumes emanating from sources at Sites L1, L2, L3, and L14 (Figures in **Attachment 1**). Explosives are the only contaminants identified in these plumes that could pose a risk to human health or the environment. The GRU1 plumes are present in the glacial drift aquifer at each of the referenced sites. The plumes extend into the upper bedrock aquifer for Sites L1, L2 and L3 but not for Site L14. The estimated volumes of impacted groundwater in various plumes at each GRU1 site, as provided in the ROD are presented in **Table 3**.

**Table 3 - GRU1 Sites - Volume of Impacted Groundwater**

Site	Subarea/Plume	Volumes (Million Gallons)
L1	Groundwater related to the ridge-and-furrow area	69
L2	Groundwater downgradient of burning pad area	4
L3	Groundwater downgradient of burning cage	2
	Groundwater downgradient of bermed area	10
L14	Groundwater downgradient of sumps at Bldg. 4-5	2
Total		87

Remedial goals (RGs) for the contaminants presented in **Table 4** were exceeded in groundwater at GRU1 Sites.

**Table 4 - GRU1 Sites - Remedial Goals**

Explosives	Remedial Goal (µg/l)	Maximum Concentration Exceeding Remedial Goal (µg/l)			
		Site L1	Site L2	Site L3	Site L14
		Overburden and Shallow Bedrock	Overburden and Shallow Bedrock	Overburden and Shallow Bedrock	Overburden
1,3,5-TNB	5.1	1,300			
2,4,6-TNT	9.5	1,900			
2,4-DNT	0.42	2.01			
2,6-DNT	0.42	8.54			
RDX	2.6	56.50	640	77.90	840

### 3.2.1.1 Site L1 (Building Group 61)

This site comprises 80-acres of land and is centrally located in the northern portion of the LAP Area (**Attachment 1-2**). Site L1 is not located near a heavily populated area. The future land use of Site L1 is intended for development into the USDA Midewin National Tallgrass Prairie (MNTP). According to the baseline risk assessment, soils and groundwater at the site were stated to pose an unacceptable risk to recreational users.

Site L1 was constructed in 1941 as part of the initial operations of the installation to support World War II efforts. Site L1 was the location of demilitarization and reclamation of various munitions. It was originally used for crystallizing ammonium nitrates, but was extensively modified to function as a shell renovation and 1,3,5-trinitrobenzene (TNB) recovery plant until 1945. In April 1946, the facility was reactivated to reclaim TNT. Washout operations involving the larger munitions were performed outside Building 61-35, which is located southeast of Building 61-4. The solids that settled in the sump were sent to Site L2 (Explosive Burning Grounds), while the overflow from the sump (pink water) was discharged to an adjacent 4.3-acre ridge-and-furrow system (or evaporating bed). Historical aerial photos revealed that by 1952 two rectangular pits or lagoons had been constructed southeast of the ridge-and-furrow system on either side of the drainage ditch that flows south from the ridge-and-furrow system and empties into Prairie Creek. Explosives contamination appears to be limited to the ridge-and-furrow system, the western lagoon south of the evaporation beds, the area south of the washout building and around the sump building.

Within the SOU, the primary health threat at Site L1 was associated with SRU1, SRU4, and SRU5 soils. Interim RGs for soil presented in the October 1998 ROD were based upon risk-based models for recreational exposure of humans to COCs. RA activities conducted in 1999 removed SRU4 soils and related COCs above RGs to minimize the risk to human health and the environment. According to the Remedial Action Objectives (RAOs) set in the October 1998 ROD, Site L1 has achieved closure status for SRU4 soils as documented in the *Final PCB Sites RA Closure Report* (MWH Americas, Inc. [MWH], December 2001). Subsequent RA activities removed SRU1 and SRU5 soils and sediment containing COCs above RGs. According to the RAOs set forth in the June 2004 ROD, Site L1 has achieved closure status for SRU1 and SRU5 soils as documented in the *Final Closure Report, Sites L1, L7, L8, L9, L10, L14, and M2* (MWH, October 2006).

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis to evaluate the progress of the site since 1998. It is anticipated that the completed RA for the SOU soils at this site will result in an accelerated rate of natural attenuation.

### 3.2.1.2 Site L2 (Explosives Burning Grounds)

Site L2 comprises approximately five-acres located in the west-central portion of the LAP Area, adjacent to Prairie Creek and Kemery Lake (**Attachment 1-2**). Site L2 is not located near a heavily populated area. The future land use of Site L2 is intended for development into the USDA MNTP. According to the baseline risk assessment, soils and groundwater at the site were stated to pose an unacceptable risk to recreational users.

The operational area of Site L2 consists of six east-west pads, each approximately 650 ft long and 50 ft wide, on which explosives and associated wastes from Sites L7 to L10, L14, and L1, were burned. Spent carbon from the carbon units used in the TNT/Composition B melt-load processes was also incinerated on the burning pads. Unexploded ordnance (UXO), including fuses and other items has been identified to be present on the burning pads. Three popping furnaces, where small ammunition was detonated, were located at the southwest corner of the site. Site L2 also contained three solvent and oil disposal pits (each less than 0.25 acre) located adjacent to the burning pads, which were occasionally used to burn waste oil. These pits were remediated in 1996 as part of a removal action conducted by the U.S. Army, and Munitions and Explosives of Concern (MEC) were discovered to be buried in an area north of the burning pads. The MEC were disposed of properly as part of the removal action, although a complete MEC sweep was not performed and it is possible that additional MEC remain at the site in the vicinity of the removal action.

Within the SOU, the primary health threat at Site L2 was associated with SRU1 and SRU2 soils, and potential MEC waste. Final remedial goals and final remedies for the interim portion of the 1998 ROD were presented in the 2004 ROD. RA activities have been completed, and soil and sediment containing COCs above RGs were removed, thereby minimizing the risk to human health and the environment. According to the RAOs set forth in the June 2004 ROD, Site L2 has achieved closure status for SRU1 and SRU2 soils as documented in the *Draft Final Closure Report, Sites L2, L5, L23A, M3, M4, and M12* (MWH, March 2008).

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis to evaluate the progress of the site since 1998. It is anticipated that the completed RA for the SOU soils at this site will result in an accelerated rate of natural attenuation.

### **3.2.1.3 Site L3 (Demolition Area)**

Site L3 is located directly southwest of Site L2 and comprises approximately 50 acres. It is bounded to the west by Prairie Creek, to the south by an unnamed tributary to Prairie Creek, and to the east by Star Grove Cemetery (**Attachment 1-2**). Site L3 is not located near a heavily populated area. The future land use of Site L3 is intended for development into the USDA MNTP. According to the baseline risk assessment, soils and groundwater at the site were stated to pose an unacceptable risk to recreational users.

The principal operation conducted at Site L3 was the open burning of combustible refuse and munitions crates. A 1-acre fire training area was also located at the site.

Within the SOU, the primary health threat at Site L3 was associated with SRU2, SRU3, SRU6 soils, and MEC waste. Final RGs for SRU6 soils and interim RGs for SRU2 and SRU3 soils presented in the October 1998 ROD were based upon risk-based models for recreational exposure of humans to COCs. Final RGs for SRU2 and SRU3 soils presented in the June 2004 ROD were based upon risk-based models for prairie workers and ecological receptors. Remedial action activities were conducted at Site L3 to excavate and dispose of all soil related

COCs above designated RGs and remove any existing MEC waste at the site. Remedial action activities conducted at Site L3 also included the construction of the new landfill cap for SRU6 soils. According to the RAOs set in the October 1998 and June 2004 RODs, all actions required achieve closure status for SRU2, SRU 3 and SRU6 soils have been completed; however, the *Final Closure* has not been submitted as of the writing of this review.

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis to evaluate the progress of the site since 1998. It is anticipated that the completed RA for the SOU soils at this site will result in an accelerated rate of natural attenuation due to removal of source materials and reduction of infiltration.

#### **3.2.1.4 Site L14 (Production and Storage Area)**

Site L14 is a 33-acre site located in the southwestern corner of the LAP Area. Site L14 is not located near a heavily populated area. The future land use for Site L14 is intended for development into the USDA Midewin National Tallgrass Prairie. According to the baseline risk assessment, soils and groundwater at the site were stated to pose an unacceptable hazard to future recreational users.

Site L14 is located near Sites L15 through L19 (**Attachment 1-2**). It was initially constructed to produce various types of fuses. Mercury fulminate, reportedly stored at Site L14, was loaded into the fuses in the assembly line building (Building 4-14). After 1945, Building 4-14 was used for repackaging smokeless powder. According to JOAAP personnel, a sump north of Building 4-5 periodically overflowed, resulting in soil contamination in this area.

Within the SOU, the primary health threat at Site L14 was associated with SRU1 soils. Final remedial goals and final remedies for the interim portion of the 1998 ROD were presented in the 2004 ROD. RA activities have been completed, and soil and sediment containing COCs above RGs were removed, thereby minimizing the risk to human health and the environment. According to the RAOs set forth in the June 2004 ROD, Site L14 has achieved closure status for SRU1 soil as documented in the *Final Closure Report, Sites L1, L7, L8, L9, L10, L14, and M2* (MWH, October 2006).

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis to evaluate the progress of the site since 1998. It is anticipated that the completed RA for the SOU soils at this site will result in an accelerated rate of natural attenuation.

#### **3.2.2 GRU2, Explosives and Other Contaminants – MFG Area**

GRU2, Explosives and Other Contaminants in Groundwater, is entirely in the MFG Area. GRU2 consists of plumes emanating from sources in Sites M1, M5, M6, and M7 (**Attachment 1-2**). These plumes extend beneath portions of Sites M8 and M13; however, there are no suspected sources of groundwater contamination in those areas. Explosives-impacted groundwater contaminant plumes are present in the overburden and upper bedrock aquifers.

Various metals were also identified in groundwater at several sites. Tetrachloroethene (PCE), a VOC, was identified in one sample from Site M8 in 1995.

The estimated volumes of impacted groundwater in various plumes at each GRU2 site, as provided in the ROD, are presented in **Table 5**.

**Table 5 - GRU2 Sites - Volume of Impacted Groundwater**

Site	Subarea	Volume (million gallons)
M1	Southern Ash Pile (explosives and antimony)	62
M5	Tetryl Production Area (explosives)	96
M6	TNT Ditch Complex (explosives and PCE)	96
M7	Red Water Area (explosives and antimony)	96
M8	Acid Manufacturing Area (explosives and PCE)	96
M13	Gravel Pits (explosives, cadmium and antimony)	96
	Total	542

Remedial goals (RGs) for the contaminants presented in **Table 6** were exceeded in groundwater at GRU2 Sites.

**Table 6 - GRU2 Sites - Remedial Goals**

	Remedial Goal (µg/l)	Maximum Concentration Exceeding Remedial Goal (µg/l)					
		Site M1	Site M5	Site M6	Site M7	Site M8	Site M13
		OV and SBR	OV	OV and SBR	OV and SBR	OV	OV
<b>Explosives</b>							
1,3,5-TNB	5.1			240			15.5
2,4,6-TNT	9.5		16.7	2,600	9.5		12.9
2,4-DNT	0.42			3,200	200	9	126
2,6-DNT	0.42	0.608	5.53	2,700	70	0.53	39
2-NT	1,000			21,000			
NB	51			81.8			
RDX	2.6			52.7	46		
<b>Metals</b>							
Antimony	24	31					38.7
Cadmium	50			162			56
Iron	5,000		42,000			48,000	
<b>Organics</b>							
Tetrachloroethene	25			150			
OV = Overburden SBR=Shallow Bedrock							



### 3.2.2.1 Site M1 (Southern Ash Pile)

Site M1 is comprised of approximately 68 acres located in the southwestern part of the MFG Area (**Attachment 1-2**). Site M1 is not located near a heavily populated area. The future land use for Site M1 is intended for development into USDA Midewin National Tallgrass Prairie. According to the baseline risk assessment, soils were stated to pose an unacceptable risk, and groundwater was stated to pose an unacceptable hazard to future recreational users.

The Southern Ash Pile was used from 1965 through 1974 as a landfill for ash residues generated from the incineration of wastewater produced in the TNT manufacturing processes. The "red water ash" in the Southern Ash Pile is derived from K047-listed hazardous wastes. IEPA has notified the U.S. Army, by letter of July 24, 1998, that because the ash residues at Site M1 no longer exhibit the characteristic of reactivity (for which they were listed), they are no longer hazardous wastes under Illinois Administrative Code (IAC) 35 IAC 721.103(a)(2)(C). The ash pile, measuring 800 ft by 450 ft, covers approximately 8 acres and is 10 to 15 ft high. The ash pile has been covered with various barriers as part of an interim action. The source of the groundwater contamination appears to be constituents leaching from the ash placed at this site. Sulfate concentrations in compliance wells at Site M1 have previously exceeded the groundwater RG. An Explanation of Significant Difference (ESD) submitted by the USACE on February 13, 2003 requested a modification to expand the northern boundary of the GMZ at Site M1. The ESD modification was approved, as proposed, in February 2003.

Within the SOU, the primary health threat at Site M1 was associated with SRU6 soils. According to the RAOs set forth in the October 1998 ROD, all actions required to excavate and dispose of SRU6 soils at Site M1 and achieve closure status for soil at Site M1 have been completed; however, the *Final Closure* has not been submitted as of the writing of this review.

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis to evaluate the progress of the site since 1998. It is anticipated that the completed RA for the SOU soils at this site will result in an accelerated rate of natural attenuation.

### 3.2.2.2 Site M5 (Tetryl Production Area)

Site M5 consists of approximately 244 acres located in the central portion of the MFG Area (**Attachment 1-2**). Site M5 is located in an area of industrial development. The site has been transferred and is currently owned by Centerpoint Properties, a private entity. The site is part of an intermodal transportation facility and includes a rail spur, additional roadways for truck traffic, and large areas reserved for warehouses parking and open storage. According to the baseline risk assessment, soils and sediment at the site were stated to pose an unacceptable risk to industrial users.

The principal historical activity at Site M5 was the production of tetryl. Wastewater from the tetryl manufacturing processes flowed into settling boxes and was discharged into open drainage ditches that ultimately led to Grant Creek to the south of the Tetryl Production Area. Wastewater from acid spills and daily floor cleaning was also discharged. Buildings in Site M5 West were removed in 1988, and the area was backfilled, re-graded, and re-vegetated. Buildings

in the Site M5 - East Area were demolished in 1998 in conjunction with the liquidation activities at JOAAP.

According to the baseline risk assessment, soils and sediment at the site were stated to pose an unacceptable risk to industrial users. Remediation goals presented in the October 1998 ROD were based upon risk-based models for industrial exposure of humans to COCs. Within the SOU, the primary health threat at Site M5 was associated with SRU1 and SRU3 soils. Soil and sediment containing COCs above RGs were removed during RA activities, thereby minimizing the risk to human health and the environment. According to the RAOs set forth in the October 1998 ROD, Site M5 has achieved closure status as part of the SOU as documented in the *Final Site M5 Closure Report* (MWH, December 2000).

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis to evaluate the progress of the site since 1998. It is anticipated that the completed RA for the SOU soils at this site will result in an accelerated rate of natural attenuation.

### **3.2.2.3 Site M6 (TNT Ditch Complex)**

Site M6 covers approximately 271 acres, located in the central part of the MFG Area (**Attachment 1-2**). Site M6 is not located near heavily populated or environmentally sensitive areas. Site M6 has not yet been redeveloped and has not yet been transferred. When it is transferred, it will be integrated with other property that was transferred to the State of Illinois for inclusion into an industrial park and was subsequently transferred to CenterPoint Properties Trust. Developments within the industrial park include an intermodal rail system with a rail spur, additional roadways for truck traffic, and warehouses. According to the baseline risk assessment, soils, sediment, and groundwater at the site were stated to pose an unacceptable risk to industrial users.

Production of TNT and DNT were the major activities at Site M6 during World War II and the Korean and Vietnam Wars. During each of the inter-war periods, the plant mission was changed to a research and development (R&D) role in which explosive compounds, such as nitroxylenes, were produced. TNT process wastewater (“red water”) initially discharged to open clay-lined ditches that drained into the 9,100-foot long “TNT Ditch.” Wastewater discharged directly to the TNT Ditch was not treated in the Red Water Area and flowed directly into Grant Creek. Large quantities of oleum, nitric acid, and intermediary explosives compounds were occasionally discharged to the ditch.

Within the SOU, the primary health threat at Site M6 was associated with SRU1 and SRU3 soils. According to Page 4-1, Paragraph 2 of the October 1998 ROD, Risk Assessment studies determined that surface waters at JOAAP posed no risk to human health and the environment, and were therefore not addressed as a contaminated medium. Following RA activities, soil and sediment containing COCs above RGs were removed, thereby minimizing the risk to human health and the environment. According to the RAOs set forth in the October 1998 ROD, Site M6 has achieved closure status for SRU1 and SRU3 soils as documented in the *Final Closure Report, Site M6* (MWH, June 2006).

Seven explosives (RDX, 2,4-DNT, 2,6-DNT, nitrobenzene (NB), 2-NT, TNB, TNT) were detected with concentrations above the RGs in groundwater samples from Site M6. The largest source of explosives in groundwater in Site M6 is the wastewater infiltration from the TNT Ditch. According to the ROD, PCE was detected at a concentration of 150 µg/L in one sample, above the RG, and the source appeared to be related to a release in the former shop area of Site M6. Additional monitoring for PCE at Site M6 has indicated no exceedances of the RG. A total of 26 wells at Site M6 have been sampled for VOCs since 1998 for a total of 107 VOC analyses conducted. PCE was only detected once at well MW313 at a level between the level of detection and level of quantitation. Subsequent resampling at MW313 indicated no detection of PCE.

According to the ROD, cadmium was detected once in a sample collected from MW123 in 1982 at a concentration (162 µg/L), which is higher than the RG. No supporting documentation could be located confirming this detection. No cadmium was detected at MW123 in a sample collected during June 1981.

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis to evaluate the progress of the site since 1998. It is anticipated that the completed RA for the SOU soils at this site will result in an accelerated rate of natural attenuation.

#### **3.2.2.4 Site M7 (Red Water Area)**

Site M7 covers approximately 49 acres located in the central part of the MFG Area immediately to the south of Site M6 (**Attachment 1-2**). Site M7 is not located near heavily populated or environmentally sensitive areas. The Red Water Area of Site M7 has not yet been redeveloped and has not yet been transferred. When it is transferred, it will be integrated with other property that was transferred to the State of Illinois for inclusion into an industrial park and was subsequently transferred to CenterPoint Properties Trust. Developments within the industrial park include an intermodal rail system with a rail spur, additional roadways for truck traffic, and warehouses. The majority of the land area at Site M7 has not yet been redeveloped. Based upon future industrial use of Site M7, final soil RGs in the ROD were based on human health risk-based models for industrial exposure. According to the baseline risk assessment, soils were stated to pose an unacceptable hazard, and surface water, groundwater and sediment were stated to pose an unacceptable risk to future industrial users.

Facilities within Site M7 included three separate groups of storage tanks, pumping stations, evaporators, and incinerators. Beginning in 1965, these facilities were used to treat wastewater (“red water”) containing explosives residues and derivatives produced in the TNT manufacturing process. The red water was collected in storage tanks to the south of the TNT Ditch Complex. Overflow of untreated red water was stored in a 3.3-acre lagoon located in the northern portion of Site M7. The Red Water Lagoon, had a capacity of 4.1 million gallons and was remediated in 1985.

Within the SOU, the primary health threat at Site M7 was associated with SRU1 soils. According to Page 4-1, Paragraph 2 of the October 1998 ROD, Risk Assessment studies determined that

surface waters at JOAAP posed no risk to human health and the environment, and were therefore not addressed as a contaminated medium. Soil containing COCs above RGs were removed during RA activities, thereby minimizing the risk to human health and the environment. According to the RAOs set forth in the October 1998 ROD, Site M7 has achieved closure status as part of the SOU as documented in the Final Closure Report – Site M7 (MWH, November 2003).

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis to evaluate the progress of the site since 1998. It is anticipated that the completed RA for the SOU soils at this site will result in an accelerated rate of natural attenuation.

### **3.2.2.5 Site M8 (Acid Manufacturing Area)**

Site M8 covers an area of approximately 304 acres in the central portion of the MFG Area (**Attachment 1-2**). Site M8 is not located near populated or environmentally sensitive areas. According to the Finding of Suitability to Transfer (FOST), February 1999, no exceedances of soil RGs were known at Site M8. Therefore, no remedial action was required for soil prior to the land transfer. ICs prohibit the extraction or use of groundwater from the site. On August 10, 2000, Site M8 was transferred to the State of Illinois for inclusion into an industrial park facility. Subsequent site activities have included the construction of an intermodal rail facility currently operated by Burlington Northern Santa Fe (BNSF) Railroad

Site M8 contains four areas in which nitric and sulfuric acids were historically produced and combined into various strength "mixes" for use in the manufacturing of DNT, TNT, and tetryl. Acid Area 3 is located in the northeast corner of Site M8. The production of oleum, strong nitric acid, and other acids used in the production of explosives was the principal activity in Acid Area 3, which contained the Oleum Plant, the Northern Ammonia Oxidation Plant, and the Northern Acid Area. The Oleum Plant was located in the northern portion of Acid Area 3. The southern half of the Oleum Plant consisted of concrete and brick pads for the receiving and storage of bulk sulfur. Raw sulfur was readily apparent throughout this area and along the southern railroad spur. Sulfur is not a CERCLA regulated waste, and was not identified in the ROD as a risk.

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis since 1998, as part of the GOU long-term monitoring (LTM) plan to evaluate the progress of the site. Groundwater impacted by explosives at Site M8 is most likely due to leaching of isolated sources that have been largely depleted in the years since the facility was active.

### **3.2.2.6 Site M13 (Gravel Pits)**

Site M13 is located in the central portion of the MFG Area to the north of the Tetryl Production Area, to the east of the TNT Ditch Complex, and to the west of Acid Area 1 (**Attachment 1-2**). The Gravel Pits cover approximately 106 acres. Site M13 is not located near heavily populated or environmentally sensitive areas. Site M13 has been transferred to the State of Illinois for inclusion into an industrial park. Developments within the industrial park include an intermodal

rail system with a rail spur, additional roadways for truck traffic, large areas reserved for warehouses, and a coal-powered power plant. Based upon future industrial use of Site M13, final soil RGs established in the ROD were based on human health risk-based models for industrial exposure. According to the baseline risk assessment, no risks to industrial receptors were identified at Site M13.

Four potential disposal areas were identified within Site M13, each with an area of less than 12 acres. JOAAP records and aerial photographs indicate that landfill activities at the Northern Gravel Pit began in 1966 and ceased in 1984. The Northern Gravel Pit contains scrap metal, creosote-treated railroad ties and telephone poles, and a variety of construction and office debris. None of the other pits were identified as containing wastes posing potential threats to human health or the environment.

The source of explosives in groundwater samples may be infiltration of wastewater formerly conveyed in the TNT Ditch. In addition to the explosives, antimony was detected at MW322 at a concentration of 38.7 micrograms per liter ( $\mu\text{g/L}$ ) during October 1991, and cadmium was detected at MW126 at a concentration of 56  $\mu\text{g/L}$  (the date is unknown). Both detections of metals exceeded their respective RGs. Subsequent resampling of monitoring well MW322 for antimony during July 1998 indicated a non-detect for antimony at a reporting limit of 5  $\mu\text{g/L}$ . Monitoring well MW126 was sampled for cadmium during May 1981, September 1991, and July 1998. Cadmium was not detected above the detection limit in any of these analyses.

Site related soil contaminants include beryllium, lead, and benzo(a)pyrene. The material in the former disposal area requiring remedial action was estimated to be 222,000 cubic yards (CY). No RCRA hazardous wastes were identified at Site M13. RA activities were conducted at Site M13 to address SRU6 soils by constructing a RCRA Subtitle D landfill cap at the site. According to the RAOs set forth in the October 1998 ROD, all actions required to achieve closure status for soil at Site M13 have been completed; however, the *Final Closure* has not been submitted as of the writing of this review.

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed on a semi-annual basis since 1998, as part of the GOU long-term monitoring (LTM) plan to evaluate the progress of the site. It is anticipated that the completed RA for the SOU soils at this site will result in an accelerated rate of natural attenuation due to reduction of infiltration through the waste materials.

### **3.2.3 GRU3, Volatile Organic Compounds**

MFG Area GRU3, VOCs in Groundwater, is entirely in the MFG Area and consists of separate toluene plumes emanating from sources in the western and central sections of Site M10 - Toluene Tank Farms, and a benzene plume found at Site M3. The toluene plumes at Site M10 were in the overburden (glacial drift) aquifer of both the western and central tank farm sections of Site M10, and in the upper bedrock aquifer of the western tank farm section of Site M10. The benzene plume at Site M3 was in the upper bedrock aquifer.

The maximum exceedances of RGs for groundwater in GRU3 were 15.8 µg/L of benzene detected at Site M3, and 19,600 µg/L of toluene detected at Site M10. These compounds have not been detected in GRU3 sites since 1992. A plume volume estimate for Site M3 was not made because it was determined that benzene had degraded below the RG. The estimated volume for the Site M10 toluene plume was three million gallons.

### **3.2.3.1 Site M3 (Flashing Grounds)**

Site M3 covers an area of approximately 66 acres located in the west central portion of the MFG Area adjacent to Grant Creek (**Attachment 1**). Site M3 is not located near a heavily populated area. The future land use for Site M3 is intended for development into the USDA Midewin National Tallgrass Prairie. According to the baseline risk assessment, soils at the site were stated to pose an unacceptable hazard to future recreational users.

From 1942 until 1988, the principal activity at Site M3 was the flash burning of equipment and demolition materials to remove explosive residues. The flash burning was performed at two primary locations within a 6-acre fenced area. Four secondary burning pads were located to the south of the fenced area of Site M3.

Within the SOU, the primary health threat at Site M3 was associated with SRU1 and SRU2 soils. Final remedial goals and final remedies for the interim portion of the 1998 ROD were presented in the 2004 ROD. Soil and sediment containing COCs above RGs were removed during RA activities, thereby minimizing the risk to human health and the environment. According to the RAOs set forth in the June 2004 ROD, Site M3 has achieved closure status for SRU1, SRU2, and SRU3 soils as documented in the *Draft Final Closure Report, Sites L2, L5, L23A, M3, M4, and M12* (MWH, March 2008).

RGs for groundwater for the site were established in the 1998 ROD. Groundwater monitoring has been completed as part of the GOU LTM plan to verify the groundwater quality at the site. Groundwater samples have been collected from two monitoring wells at Site M3 (MW233 and MW352) and analyzed for VOCs (as well as explosives, anions, metals, and semi-volatile compounds). One well (MW233) contained benzene exceeding the RG during August 1991; however, subsequent re-sampling of monitoring well MW233 during July and December 1998 and June and October 1999 yielded no other detections of benzene. No other VOCs have been detected in groundwater at Site M3 exceeding RGs. Monitoring wells MW112 and MW113 at Site M3 serve as compliance monitoring wells for Site M7.

It is not anticipated that the completed RA for the SOU soils at this site will have a significant impact on the groundwater quality at this site.

### **3.2.3.2 Site M10 (Toluene Tank Farm)**

Site M10 is located in the northern portion of the MFG Area at three separate areas formerly developed with toluene tank farms. Site M10 is not located near a heavily populated area. The future land use for the Central Tank Farm at Site M10 is intended for development into the

USDA Midewin National Tallgrass Prairie. The West Tank Farm at Site M10 is in the process of being transferred to the State of Illinois for inclusion into an industrial park.

The toluene tank farms each covered approximately five acres and were in use through 1976. Four above ground storage tanks (ASTs), each with a capacity exceeding one million gallons of toluene, were constructed in each tank farm. Xylenes were reportedly stored in two of the three tank farms During World War II; however, the specific tanks used for xylene storage are not known. In separate incidents in August 1968 and July 1971, lightning destroyed the northwestern and southwestern ASTs in the Western Toluene Tank Farm. An estimated 1.1 million gallons of toluene were lost, and for the most part destroyed, in each of the explosions and subsequent fires. Spill records also indicate that an AST in the Central Toluene Tank Farm was struck by lightning in June 1971. The tank was not destroyed; however, an unknown volume of toluene was lost and destroyed. Notwithstanding the large volume of xylene released to the environment, no soil contamination was identified in association with Site M10.

Toluene was detected in two samples at the Central Toluene Farm from monitoring well MW224 at a concentration of 20,000 µg/L during July 1988 and 6,000 µg/L during December 1992. In the Western Toluene Tank Farm, toluene was detected in two samples from monitoring well MW220 at a concentration of 10,000 µg/L during July 1988 and 19,600 µg/L during October 1991. The presence of toluene in groundwater, but absence in soil, has been explained as the result of a high water table and thin overburden creating a flushing mechanism for the overburden. The suspected source is from the historical spills from tanks ruptured after being struck by lightning.

VOC concentrations at Site M10 wells have been below RGs since 1998. Groundwater monitoring conducted at Site M10 during 1998, 1999, and 2000 at monitoring wells MW224 and MW220 indicated no detections of toluene. The Final Site M10 Closure Report was submitted in March 2003.

No contaminants were detected in excess of the final remedial goals presented in the October 1998 ROD and RGs for groundwater have been met for over 16 years. Site M10 has achieved closure status according to the RAOs set in the 1998 ROD. The contaminant concentrations in soil and groundwater do not pose a threat to human health or the environment, and no further action should be necessary at Site M10.

#### **3.2.4 GOU No Further Action Sites**

Fifty-three sites, plus three subareas suspected as having groundwater contamination, were investigated during the RI/FS and Risk Assessment process. The groundwater underlying 41 of these sites and the three subareas was determined to have either no contamination, no historical evidence suggesting potential contamination, or IEPA and USEPA agreed that, under CERCLA requirements, no further cleanup actions are required for these sites.

## 4.0 REMEDIAL ACTIONS

The first ROD for the GOU and SOU sites at JOAAP was signed in October and November 1998. Actions related to SRU 1, 2, 3, and 5 on lands designated for transfer to USDA were considered interim in the 1998 ROD. All other decisions within the 1998 ROD were considered final. Remedial action objectives (RAOs) presented in the ROD were developed as a result of RI/FS activities conducted at the site. Data and cost estimates from RI/FS activities aided in the development and screening of remedial alternatives considered in the ROD. The primary objective of the remedial actions at JOAAP was to effectively mitigate, minimize threats to, and provide adequate protection of human health and the environment. To meet this objective, RAOs were developed for the SOUs and GOUs. The objectives of the final remedial actions are summarized as:

- Cleanup contaminants to the site-specific and chemical-specific RGs
- Prevent human and environmental exposure to concentrations above the RGs
- Eliminate soils as a continuing source of impacts to groundwater
- Prevent migration of contaminants
- Remove characteristically hazardous RCRA wastes, except those contained within the capped landfills of SRU6

The objectives of the interim remedial actions are summarized as follows:

- Eliminate soils as a continuing source of impacts to groundwater
- Prevent migration of contaminants

Final remedial actions for SRU 1, 2, 3, and 5 soils on land intended for future transfer to USDA were developed, evaluated, selected, and presented in the Proposed Plan for the Soil Operable Unit, Interim ROD Sites (U.S. Army, February 2004). A final ROD for the interim SOU sites was signed in June 2004. The selected remedies for interim sites were subsequently presented and approved by the appropriate regulatory agencies in accordance with the NCP.

## 4.1 REMEDY SELECTION

The ROD for JOAAP underwent numerous internal modifications to address comments from the USDA in regard to the land intended to be transferred for reuse as the Midewin National Tallgrass Prairie. The ROD signed in 1998 was issued with interim guideline status for the SOU sites located on land intended for future transfer to the USDA. This allowed site cleanup in time critical areas to proceed in a timely manner. The ROD for the interim SOU sites signed in June 2004 did not directly affect the GOU sites and did not affect the implementation of the remedy for LTM plan for the GOU.

The SOUs were divided into seven SRUs, the GOUs were divided into three GRUs, and there were also two no further action (NFA) groups. Six SRUs involved CERCLA-based remediation, one SRU involved non-CERCLA-based removal action, and one SRU involved NFA sites for soil. Three GRUs involved CERCLA-based action, and one GRU involved NFA sites for groundwater. The final cleanup goal of the SRUs and GRUs was to protect human health and the



environment by eliminating, reducing, or controlling hazards posed by the site. The goal of interim SOU actions was to remove sources of groundwater impacts and/or prevent further migration of contamination.

The majority of the remedies selected for interim and final SOU included any one, or a combination of the following: excavation, waste segregation, recycling, bioremediation treatment of soil, confirmatory sampling, reuse or disposal of soil, or landfill capping. Descriptions of specific interim SOU remedies selected for SRUs are presented in the Second Five Year Review for the SOU, submitted under separate cover. Detailed information is also available in the relevant Remedial Action Project Work Plans.

Twenty-eight no further action sites at JOAAP, previously suspected of having soil contamination, have been determined to contain either no evidence of contamination or concentrations that do not pose a threat to human health and the environment. These sites require no further cleanup actions.

The remedial alternatives presented in the ROD for the GOU included no action, limited action, and pump and treat alternatives. Forty-three sites at JOAAP suspected of having groundwater contamination have been determined to contain either no evidence of contamination or concentrations that do not pose a threat to human health and the environment. These sites require no further cleanup actions.

The limited action alternative was chosen for the three GRUs in the GOU. Under the limited action alternative, steps are taken to prevent or limit the likelihood of human consumption or exposure to impacted groundwater, and natural attenuation is relied upon to lower the concentrations of COCs in groundwater.

The limited action alternative includes the following:

- Establish GMZs
- Develop, implement, and enforce deed and zoning restrictions (ICs)
- Conduct periodic site inspections
- Monitor groundwater and surface water quality
- Evaluate the progress of natural attenuation processes

Natural attenuation relies upon natural processes such as biological degradation, sorption, dispersion, and dilution to reduce the concentrations of COCs in the plumes. Source removal at sites where soil contamination exists at concentrations greater than RGs is required to enhance the rate of natural attenuation in the GRUs. Source removal activities are described in the SOU RD/RA Work Plans and Closure Reports, and the progress towards the SOU RAOs is described in the SOU Second Five-Year Review Report.

Monitored natural attenuation has been recognized as a cost-effective remedy for numerous federal and private facilities and has been accepted by the U.S. Army, the USEPA, and the IEPA as the best alternative for groundwater cleanup at JOAAP.

## **4.2 REMEDY IMPLEMENTATION**

Source removal of contaminated soil from SRU sites is an important component of natural attenuation for groundwater remediation at most of the GRU sites. The remedial design for the SOU remedial activities was conducted between July 1998 and April 1999. The majority of the interim and final SOU actions were completed during the first and second Five Year Review periods, as summarized in the site chronology presented in Section 2.0. Sites were prioritized for cleanup and remedial activities were generally first at the sites that posed the highest risk to human health and the environment. Other factors affecting the order of remedial activities included, the potential for migration of COCs from soil to groundwater, pending property transfers, and budgetary considerations.

Twenty-four sites were investigated in the SOU and grouped into seven SRUs according to the type of contamination found. The seven SRUs do not have a direct correlation with the three GRUs. Because multiple types of soil contamination occur at individual sites, the same site may have more than one SRU designation.

Selected remedies for soils included any one, or a combination, of the following: excavation, waste segregation, recycling, bioremediation treatment of soil, confirmatory sampling, reuse or disposal of soil, or landfill capping. Descriptions of specific interim SOU remedies for SRUs are presented in the Second Five Year Review for the SOU, submitted under separate cover. Detailed information is also available in the relevant Remedial Action Project Work Plans and Closure Reports.

The relationship of the various SRUs to the GRUs is complex given that sites may be grouped into multiple SRUs. Not all soil sites have corresponding groundwater contamination, and some groundwater sites do not have soil contamination; therefore, most discussion is presented in terms of the specific sites. Specific SRU remedial activities are described in the SOU RD/RA Work Plans and Closure Reports.

The initial remedial design for the GOU was conducted between July 1998 and April 1999. The Final Groundwater Operable Unit Remedial Design/Remedial Action Work Plan (MW, 1999) was approved and signed on April 8, 1999. Additional work plans for individual sites were prepared between 1999 and 2007. The primary objective of the cleanup of the GOU at JOAAP is to effectively mitigate contamination, minimize contaminant threats, and provide adequate protection of human health and the environment. The combination of the monitored natural attenuation groundwater remedy and source removal of impacted soils for the MFG and LAP Areas are expected to meet the RAOs.

## **4.3 SYSTEM OPERATIONS/OPERATION AND MAINTENANCE (O&M)**

The remedy has been implemented without major modification. One ESD was necessary for Site M1. The ESD expanded the northern and western boundaries of the GMZ. The expanded GMZ area consists of approximately 49 acres on pastureland previously transferred to the USDA for intended future use as tall grass prairie.

In conjunction with the change in the GMZ boundary, the early warning and compliance wells were reassigned. The new boundaries should allow the groundwater remedy (natural attenuation) to proceed without additional exceedances of the sulfate RG at, or beyond, the GMZ limits.

Periodic maintenance of the groundwater monitoring network has occurred at JOAAP. Due to the development of the Deer Run Industrial Park within the MFG Area, 26 monitoring wells were abandoned after the Spring 2001 sampling round. Eighteen of these wells that were part of the LTM program were replaced. The eighteen replacement wells were sampled during September and October 2001. The replacement wells were labeled using the original well name followed by a “R” which designates it as a replacement well. In addition to the eighteen replacement wells, four monitoring wells (MW662, MW663, MW664, and MW665) were added at Site M6 to monitor groundwater around a large sedimentation basin installed as part of the land redevelopment. Additional well abandonment and replacement activities took place in 2004 at Site M13. Development activities at Site M13 resulted in the damage or destruction of monitoring wells GC3, GC4, M2, M3, MW126, MW345, and MW346. Monitoring wells M2, MW126, and MW345 were abandoned. Monitoring wells GC3, GC, M3, and MW346 could not be located. Replacement wells consisted of two well nests, each with an overburden well and a shallow bedrock well. One of the well nests was installed at the former MW126 location (MW126R/MW362) and the other well nest was installed near the former MW345 location (MW363/MW364). The activities described above took place during the First Five-Year Review Period. Annual costs for system Operations/O&M for LTM in the GOU are presented in **Table 7**.

**Table 7 - Annual System Operations/O&M Costs for the GOU**

<b>Year</b>	<b>Total Cost</b>
2005	\$209,000
2006	\$330,000
2007	\$322,000
2008	\$327,000

#### 4.4 INSTITUTIONAL CONTROLS

The selected RGs and RAOs for JOAAP were designed to be protective of human and ecological receptors based on the intended land use, and were not intended for unlimited exposure and unrestricted use scenarios; therefore, institutional controls (ICs) were included as part of the remedy. ICs are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Effective ICs are required to ensure the protectiveness of the remedy at JOAAP.

The ICs vary depending upon impacted media and the intended land use, but share at least one common objective; to limit the exposure of human and ecological receptors to contaminated soil or groundwater in order to avoid unacceptable risks. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted

exposure. Two contaminated environmental media, soil and groundwater, and three primary land uses, prairie/recreational, landfill, and commercial/industrial are present in various areas of JOAAP which do not allow for unlimited use or unrestricted exposure. Each combination is restricted by a different set of ICs.

ICs have been implemented over the entirety of all land areas which do not allow for unlimited use or unrestricted exposure at JOAAP that have been transferred by the U.S. Army; including Federal to Federal and Federal to State and County transfers. The ICs are evaluated in more detail in subsequent sections.

Graphical depictions of ICs referenced in subsequent sections are based on data derived from various sources and documents that are believed to be reliable and up to date, including deeds and the USDA FS Prairie Plan. The data used to depict the property ownership in the areas covered by ICs was derived from the Will County GIS web site. References to these various maps are provided in subsequent sections. Compliance with the ICs is documented semi-annually by the O&M contractor during groundwater sampling activities and annually in letter or reports prepared by current or previous property owners bound by the terms of the ICs. Semi-annual groundwater monitoring reports are submitted to USEPA and IEPA.

Based on the data reviewed for this Five Year Review the existing ICs are preventing exposure to soil and groundwater and are effective in maintaining the objectives/restrictions/performance standards in the short term and in the long term. Land use has changed in the restricted areas with development since execution of the ROD, but is consistent with the uses intended in the ROD, the Prairie Plan and the respective 2009 zoning maps for the Town of Elwood, the City of Wilmington, and Will County. Zoning and land use maps are presented in Attachment 12, Figures A12-4 through A12-8.

Most of the property to be conveyed by the U.S. Army in the MFG Area has already been conveyed. The remaining parcels to be transferred to non-Federal entities are already described in previous deeds which include ICs that are anticipated to be protective of human health and the environment when the remedy for soil has been completed and accepted as final; however, any parcel transferred with landfill (M13) will require additional ICs that prohibit interference with the landfill cap. Most of the property that will be transferred to the USDA FS will likely include similar ICs to those described in the Prairie Plan for M3 Areas; however, any parcel transferred with landfill (M11) will require additional ICs that prohibit interference with the landfill cap.

Most of the property to be conveyed by the U.S. Army in the LAP Area has already been conveyed. The remaining parcels will be Federal to Federal transfers and will likely include similar ICs to those described in the Prairie Plan for M3 Areas; however, any parcel transferred with landfill (L3) will require additional ICs that prohibit interference with the landfill cap.

New developments are planned in the Deer Run Industrial Park in the MFG Area and in the Island City Area of the LAP Area. Planned land use in both areas is consistent with the long range development plans and the existing developments in these areas. It is anticipated that development of these areas will proceed when the Final Remedy for soil is complete, and as economic conditions dictate. The current and anticipated future land and resource uses are

consistent with the exposure assumptions and risk calculations presented in the ROD. No unintended consequences have been reported or observed as a result of the ICs.

Further details regarding the ICs and recommendations to enhance documentation of compliance with the ICs to verify that they are being implemented correctly, are presented in the following sections.

#### **4.4.1 ICs for Contaminated Areas Transferred to the USDA FS**

Due to the procedure for transfer of land from one Federal agency to another, formal deeds were not recorded for property that was transferred from the U.S. Army to the USDA Forest Service. However, Army conveyance documents including the Environmental Condition of Property (ECOP) and Letters of Assignment, included applicable land use restrictions. These restrictions were incorporated into the USDA Forest Service official land management plan for the site (The Prairie Plan). An amendment to the Prairie Plan (Amendment 1) prepared June 28, 2008 established a separate management area (MA 3) to provide direction for monitoring and reporting on land uses for remediated lands transferred from the U.S. Army. MA 3 lands have two designations which carry separate restrictions; Soil Restricted Areas (SRA) and Groundwater Management Zones (GMZ).

According to the amended Prairie Plan, SRAs soils are contaminated with chemicals of concern which have been remediated to the standards identified in the 2004 ROD or are areas where bio-remediated soils have been used as backfill. In either case, the sites in SRAs do not meet a residential standard (i.e. no picnic areas or campgrounds) and require land use constraints and tracking. GMZs have contaminated groundwater which is expected to attenuate naturally over time. Restrictions on groundwater use in the GMZs will be in place until monitoring indicates that water quality meets the standards identified in the 1998 ROD. MA3 land may not be suitable for any future land conveyances without consultation with the U.S. Army, Illinois EPA and USEPA and additional cleanup. MA3 land that is conveyed outside a governmental agency, land must be remediated to a residential standard, or conveyed with a deed restriction.

Approximately 1,028 acres of land were allotted to MA 3 with the amendment and have one or both of the SRA and GMZ designations. The Prairie Plan (as amended) includes requirements for the Forest Service to report to the U.S. Army, Illinois EPA and USEPA annually on the status of land use and groundwater restrictions as well as any land use proposals that would be, or were, affected by them. The location and extent and type of MA3 land is depicted in Attachment 12, Figure A12-1. The IC objectives, standards, and restrictions are fully described and clearly stated in the Prairie Plan. In addition to general restrictions preventing unrestricted exposure to soils with residual contamination and preventing the development and use of the property for residential, schools, childcare or playgrounds, or industrial uses, the following additional restrictions for MA3 land are required by the Prairie Plan.

1. SRA – Movement of soil from soil restriction areas (SRA) can only be moved within the same parcel, to another soil restriction area, or removed to a landfill permitted to accept restricted soils. Incidental soil movement, including but not limited to soil on equipment, plant salvage and soil sampling, is not subject to this restriction.

2. GMZ – Prohibit installation of groundwater production wells, or any other activities that could cause migration of contaminated groundwater, within the boundaries of groundwater management zones (GMZ) defined by the U.S. Army.
3. GMZ – If groundwater management zones are reduced or eliminated as a result of Army monitoring, the parcel cleared by the U.S. Army will revert to MA 1 – Prairie Ecosystem Restoration, without need of an amendment.
4. In areas that are comprised of more than one component of Management Area 3 (i.e. SRA and GMZ in the same area), applicable standards and guidelines will be followed for all component areas.
5. Report on condition of Management Area 3 lands annually in the Monitoring and Evaluation (M&E) Report and send M&E Report to the USEPA – Region 5, Illinois EPA and the U.S. Army

**Table 8 - Institutional Controls Summary For Land Transferred to USDA Forest Service**

<b>Media, Engineered Controls, &amp; Areas that Do Not Support UU/UE Based on Current Conditions.</b>	<b>IC Objective</b>	<b>Title of Institutional Control Instrument Implemented (note if planned)</b>
<p><b>Soil –</b> The area of restricted land use is identified in Attachment 12, Figure A12-1.</p>	<ul style="list-style-type: none"> <li>• Restrict exposure to soils with residual contamination</li> <li>• Prevent development for residential, schools, childcare, playgrounds, or industrial uses</li> <li>• No camping</li> <li>• Restrict soil movement.</li> </ul>	<p>Land and Resource Management Plan (Prairie Plan) Amendment #1 – Establishment of Management Area 3 and Designation of Utility Corridors into MA 2 USDA Forest Service Midewin National Tallgrass Prairie Wilmington, Will County, Illinois, June 26 2008</p>
<p><b>Groundwater –</b> The areas designated as Groundwater Management Zones (GMZs) are identified in Attachment 12, Figure A12-1.</p>	<ul style="list-style-type: none"> <li>• Prohibit installation of groundwater production wells, or any other activities that could cause migration of contaminated groundwater, within the boundaries of groundwater management zones (GMZ) defined by the U.S. Army.</li> </ul>	
<p><b>Remedy Components</b></p>	<ul style="list-style-type: none"> <li>• Maintain the integrity of groundwater or monitoring wells</li> <li>• Fulfill the annual tracking and reporting requirements to the U.S. Army, USEPA, and Illinois EPA</li> </ul>	

#### **4.4.1.1 Adherence to ICs - USDA FS MA3 Land**

Land use restricted property was transferred to USDA in September 2005. The Forest Service Annual Monitoring and Evaluation Report for the following Fiscal Year (FY2007) restated the objectives of the restrictions and reported that no soil or groundwater disturbances occurred on

land use restricted property. In addition, the Forest Service was proactive in amending the Prairie Plan to facilitate better tracking and management of the land use by designating a new Management Area for those lands with restrictions. The Prairie Plan and updates or amendments are provided to the U.S. Army, the USEPA and IEPA.

No activities were observed that would have violated the ICs during the site inspection.

#### **4.4.2 ICs for Contaminated Areas Transferred to the State (JADA)**

The ICs required for property conveyed from the U.S. Army to the State of Illinois (Joliet Arsenal Redevelopment Authority [JADA]) have been implemented as Land Use Restrictions and Covenants and Groundwater Restrictions and Covenants recorded on the deeds. This information is in addition to detailed descriptions of the environmental condition of the property.

Two quit claim deeds have been conveyed from the U.S. Army to JADA. A Memorandum of Agreement (MOA) included with the deeds, or included by reference, details requirements for compliance, and enforcement, and annual reporting requirements associated with the ICs. Legal descriptions and parcel and tract maps annotated with special groundwater restriction areas are also included as exhibits to the individual deeds. Copies of these documents are included in Attachment 12, and are described in chronological order as reference documents 1, 3, 4 and 5. A figure depicting the transferred areas color-coded and annotated with the appropriate deed reference document information is presented as Attachment 12, Figure A12-2.

The Land Use Restrictions and Covenants and Groundwater Restrictions and Covenants recorded on all of the deeds granted to JADA are generally the same. With limited exceptions as detailed in the deeds, the deeds generally state that the land shall be used for commercial and industrial parks and shall not be used for residential, educational, child or adult care, landfill, quarry, incineration, or concrete or asphalt batching purposes. Additionally, existing or future groundwater monitoring well shall not be used, moved, accessed, modified, removed, disturbed, close, abandoned, or otherwise harmed or destroyed. The IC objectives, standards, and restrictions are fully described and clearly stated in the deeds and MOA.

The deeds generally state that restrictions are necessary to ensure the protection of human health and the environment, and that the covenants that the restrictions therein shall run with the land and shall be binding upon the Grantee, its successors and assigns, future owners, heirs, and executors. The deeds also require that the land use restrictions and covenants be included in all subsequent lease, transfer, or conveyance documents for all or any part of the deeded tracts. Further, the deed states that failure to include the land use restrictions and covenants in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.

The deeds generally state that the Grantee (JADA) shall not knowingly or negligently undertake or allow any activity on or use of the deeded property that would violate the land use restrictions and covenants, and that the land use restrictions and covenants are enforceable by the U.S. Army.



Groundwater Restrictions for land within the GMZ generally state that JADA and future owners shall not use the groundwater above the Maquoketa confining bed for potable purposes and shall not cause any increase the volume or area of the contaminated groundwater, damage the confining layers, or create pathways of exposure to human or ecological receptors from the contaminated groundwater. All laws and regulations that are applicable to the safe and proper management, discharge, disposal, or treatment of any shallow groundwater encountered shall also be complied with.

Additional restrictions applicable to specific parcels of land included in the deeds generally state that JADA or future owners shall not use the contaminated groundwater; and shall not drill, construct, pump, or use groundwater supply wells.

**Table 9 - Institutional Controls Summary For Land Transferred to JADA**

<b>Media, Engineered Controls, &amp; Areas that Do Not Support UU/UE Based on Current Conditions.</b>	<b>IC Objective</b>	<b>Title of Institutional Control Instrument Implemented (note if planned)</b>
<b><i>Soil –</i></b> The area of land restricted to commercial industrial cleanup use is identified in Attachment 12, Figure A12-2.	<ul style="list-style-type: none"> <li>Prohibit residential, educational, child or adult care use</li> </ul>	Restrictive Covenant recorded in the following documents at the Will County Recorder's Office: <ul style="list-style-type: none"> <li>Document Number 20000086264 8/9/2000</li> <li>Document Number 200402130025145 3/15/2002</li> <li>Document Number 200504190064066 3/25/2005</li> </ul>
<b><i>Groundwater –</i></b> The areas designated as Groundwater Management Zones and Groundwater Restriction Areas are identified in Attachment 12, Figure A12-2.	<ul style="list-style-type: none"> <li>Prohibit potable use of contaminated water</li> <li>Prohibit activities that could influence flow or damage confining layers</li> <li>Require proper management or disposal of contaminated water</li> <li>Prohibit ground water supply wells and any use of contaminated groundwater in the Groundwater Restriction Areas</li> </ul>	
<b><i>Remedy Components</i></b>	<ul style="list-style-type: none"> <li>Prohibit Interference with Remedy Components- do not damage monitor wells.</li> <li>Permit unrestricted Army access for remediation, monitoring, operation and maintenance</li> <li>No landfills, quarries, concrete or asphalt batching, or incineration.</li> </ul>	

#### **4.4.2.1 Adherence to ICs – Property Conveyed to JADA**

With the exception of the Will County Landfill Parcel and Federal to Federal transfers, all other property transfers have been conveyed to JADA (Refer to Reference Documents 1,3,4 and 5 in Attachment 12). The initial deeds all include the ICs described above.

The majority of the property transferred to JADA in the MFG Area was conveyed by deed or by assignment to Centerpoint Intermodal LLC (CPI) and CenterPoint Realty Services Corporation (CRSC), as part of the Deer Run Industrial Park. Although much of the land conveyed to CenterPoint has been subsequently conveyed to other entities, CenterPoint has retained the obligation for annual reporting of adherence to ICs contained in the MOA included in the initial deed. Current property ownership is depicted on a figure and the inset table, included as Attachment 12, Figure A12-3. In accordance with the documents that transferred industrial property with restrictions and covenants, CenterPoint has submitted annual letter reports to the U.S. Army attesting that no violations of same have occurred for every year except for 2008. Copies of the most recent reports are presented in Attachment 12 to demonstrate that the reports are received. These reports are copied to USEPA and IEPA. However, the letter reports do not make it clear whether the reports cover the entire extent of the areas conveyed from JADA to CenterPoint and it is not apparent in the conveyance documents reviewed whether the reporting obligations for property in the Deer Run Industrial Park conveyed by CenterPoint have changed. No activities were observed that would have violated the ICs during the site inspection.

A significant amount of the property transferred to JADA in the LAP Area has been subsequently conveyed to others including the International Union of Operating Engineers, Prairie Craftsman, LLC, and Prologis Logistics Services, Inc. This area of JOAAP is referred to as the Island City Development. Current property ownership is depicted on a figure and the inset table, included as Attachment 12, Figure A12-3. To date, none of the required annual letter reports required for these properties have been submitted. No activities were observed that would have violated the ICs during the site inspection.

#### **4.4.3 ICs for Contaminated Areas Transferred to Will County**

The ICs required for property conveyed from the U.S. Army to Will County have been implemented as Land Use Restrictions and Covenants and Groundwater Restrictions and Covenants recorded on the deeds. This information is in addition to detailed descriptions of the environmental condition of the property.

One quit claim deed was conveyed from the U.S. Army to Will County. Legal descriptions and parcel and tract maps annotated with special groundwater restriction areas are also included as exhibits to the deed. A copy of the deed is included in Attachment 12, reference document 2). A figure depicting the transferred area color-coded and annotated with the appropriate deed reference document information is presented as Attachment 12, Figure A12-2.

The Land Use Restrictions and Covenants and Groundwater Restrictions and Covenants recorded on the deed granted to Will County generally state that the property may only be developed and utilized for landfill purposes and prohibits the development of the property for residential purposes and prohibits the use of groundwater within the glacial drift and Silurian dolomite aquifer and above the Maquoketa confining bed for human consumption. The deed

restrictions generally state that Will County and future owners shall not undertake or allow any activity on or use of the Property that would violate the land use and groundwater use restrictions contained herein. The IC objectives, standards, and restrictions are fully described and clearly stated in the deed. The deed requires that the restrictions be binding on the Will County, its representatives, agents, contractors, successors and assigns, future owners, heirs and executors, and shall be included in all subsequent deeds, leases, transfer or conveyance documents and shall run with the land.

**Table 10 - Institutional Controls Summary For Land Transferred to Will County**

<b>Media, Engineered Controls, &amp; Areas that Do Not Support UU/UE Based on Current Conditions.</b>	<b>IC Objective</b>	<b>Title of Institutional Control Instrument Implemented (note if planned)</b>
<b>Soil –</b> The area of land restricted to commercial industrial cleanup use is identified in Attachment 12, Figure A12-2.	<ul style="list-style-type: none"> <li>Prohibit residential, educational, child or adult care use</li> </ul>	Restrictive Covenant recorded in the following document at the Will County Recorder's Office:  Document Number 200204120063838 4/12/2002
<b>Groundwater –</b> The areas designated as Groundwater Management Zones and Groundwater Restriction Areas are identified in Attachment 12, Figure A12-2.	<ul style="list-style-type: none"> <li>Prohibit potable use of contaminated water</li> <li>Prohibit activities that could influence flow or damage confining layers</li> <li>Require proper management or disposal of contaminated water</li> <li>Prohibit ground water supply wells and any use of contaminated groundwater in the Groundwater Restriction Areas</li> </ul>	
<b>Remedy Components</b>	<ul style="list-style-type: none"> <li>Prohibit Interference with Remedy Components- do not damage monitor wells.</li> <li>Permit unrestricted Army access for remediation, monitoring, operation and maintenance</li> <li>No landfills, quarries, concrete or asphalt batching, or incineration.</li> </ul>	

#### **4.4.3.1 Adherence to ICs - Will County Landfill**

There is no requirement for annual reporting included or referenced in the deed granted to Will County. Mr. Dean Olsen, Will County Waste Services, was interviewed during our site visit and indicated that there have been no changes or concerns regarding ICs or access controls at the site. The site is used only for landfill operations. The site is secured at night at both the Prairie View Lane entrance and the Main landfill entrance. All secondary access gates are padlocked when not in use, and site inspections are conducted on a regular basis to verify that they remain locked. There is limited access to the forest service, and there is no public access. No activities were observed that would have violated the ICs during the site inspection.

#### **4.4.4 Summary of ICs for GOU Sites**

robust set of ICs have been designed and implemented for all transferred properties that are no longer under the direct control of the U.S. Army. These ICs are protective of human health and the environment and protect the integrity of the remedy. Similar effective ICs are likely to be employed on subsequent property transfers as soil remediation is completed at the remaining sites although some sites including L3, M11, and M13 will require additional ICs that prohibit interference with the landfill caps.

Adherence to the ICs for land transferred to the USDA FS is very well documented. Adherence to the ICs for land transferred to non-Federal entities is not well documented.

For those properties in the MFG Area that were transferred from JADA to CenterPoint, the responsibility for submission of annual reports was assigned to CenterPoint and was documented by CenterPoint for all years up to 2007. However; it is not clear whether the annual reports submitted by CenterPoint include properties that were transferred from CenterPoint to other entities. According to the U.S. Army, Pre-Transfer notification and copies of related deeds and/or leases have not been provided to the U.S. Army, IEPA and USEPA as required in the initial deeds. Additionally, no written notice has been provided to the U.S. Army with respect to the assignment of the duties and obligations imposed by the MOA from CenterPoint to subsequent property owners, and no written concurrence has been provided by the U.S. Army. Therefore, it appears that the responsibility for reporting and other the duties and obligations imposed by the MOA for the property described above remains with CenterPoint at this point in time. The Will County Property Appraiser's GIS system indicates that one 13-acre parcel in the MFG Area is owned by JADA. No annual reports have been received by the Army for the JADA-owned property in the MFG Area.

No annual reports have been received by the Army for the property currently and formerly owned by JADA in the LAP Area. No written notice has been provided to the U.S. Army with respect to the assignment of the duties and obligations imposed by the MOA from JADA to subsequent property owners, and no written concurrence has been provided by the U.S. Army. Therefore, it appears that the responsibility for reporting and other the duties and obligations imposed by the MOA for the referenced property remains with JADA at this point in time.

There is no requirement for annual reporting included or referenced in the deed granted to Will County. Information obtained during the site visit for the Five Year Review indicates that Will County is familiar with, and in compliance with the requirements of the ICs.

**Table 11 - Summary of Implemented Institutional Controls for GOU Sites**

Site	GRU Designation	Access Controls		Institutional Controls		Future Land Use	Current Owner	GMZ Boundary	Frequency of Monitoring
		Fencing	Security Patrols	Land Use Restrictions	Annual Certification of compliance				
L1	GRU1	Yes	Yes	No	Not Required	Prairie	U.S. Army	Refer to Attachment 1	Semi-Annual
L2	GRU1	Yes	Yes	No	Not Required	Prairie	U.S. Army	Refer to Attachment 1	Semi-Annual
L3	GRU1	Yes	Yes	No	Not Required	Prairie	U.S. Army	Refer to Attachment 1	Semi-Annual
L14	GRU1	Yes	Yes	No	Not Required	Prairie	U.S. Army	Refer to Attachment 1	Semi-Annual
M1	GRU2	No	Yes	No	Not Required	Prairie	U.S. Army	Refer to Attachment 1	Semi-Annual
M3	GRU3	No	Yes	No	Not Required	Prairie	U.S. Army	Refer to Attachment 1	Semi-Annual
M5	GRU2	No	Yes	Yes - Deed	Through 2007	Industrial	Elwood Intermodal, Centerpoint	Refer to Attachment 1	Semi-Annual
M6	GRU2	No	Yes	No	Not Required	Industrial	U.S. Army	Refer to Attachment 1	Semi-Annual
M7	GRU2	No	Yes	Yes - Deed	Through 2007	Industrial	U.S. Army, Centerpoint	Refer to Attachment 1	Semi-Annual
M8	GRU2	Yes	Yes	Yes - Deed	Through 2007	Industrial	Elwood Intermodal, JADA	Refer to Attachment 1	Semi-Annual
M10	GRU3	No	Yes	Yes - Deed	Through 2007	Industrial /Prairie	USDA FS, CTT LLC, GA. Pacific, Village of Elwood	Refer to Attachment 1	None
M13	GRU2	Yes	Yes	Yes - Deed	Through 2007	Industrial	U.S. Army, Centerpoint	Refer to Attachment 1	Semi-Annual

**Notes:**

1. Perimeter fencing surrounds the entire LAP area to prevent unauthorized access to the sites.
2. Only properties that have been transferred by deed, currently have active deed restrictions.
3. A portion of Site M13 has been transferred the State of Illinois. The parcel of land containing the capped M13 landfill (containing SRU6 soils), remains under the ownership of the U.S. Army.
4. In all cases the GMZ boundary extends to the base of the Silurian dolomite.

#### **4.4.5 Recommendations to Enhance Implementation of ICs**

Adherence to the ICs for land transferred to the USDA FS is very well documented and is updated annually in the Prairie Plan. The Prairie Plan identifies the areas that are under restriction, the objectives of the ICs, and the mechanisms required to achieve them. One recommendation to enhance the level of assurance and documentation that the ICs are properly implemented is to annually follow-up on the Prairie Plan with a short meeting or teleconference with minutes to verify and document that the ICs are fully understood. Consideration should also be given as to whether use of the State's one-call system can be used enhance long-term protectiveness of the remedy.

It is recommended that a clear understanding of current roles and responsibilities with respect to monitoring, reporting, and enforcement of compliance with the ICs be developed for property that was transferred to non-Federal entities. This could be accomplished in a systematic manner, starting with JADA and CenterPoint.

JADA and CenterPoint should be informed of the U.S. Army's understanding of their current responsibilities as established in the initial deeds and MOA, and should be asked to provide a letter concurring with the U.S. Army's understanding or provide additional information for clarification if they do not concur with the U.S. Army's understanding. At the same time, or subsequently, all other property owners of record in areas subject to ICs should be provided with a notification to ensure and document that they have been made aware of the environmental condition of property, ICs, and of the duties and obligations imposed by the MOA.

After it has been determined which entities are responsible for reporting for each property in areas subject to ICs, notification should be sent to each responsible entity reminding them of the deed restrictions duties and obligations. The notification should request that they provide a letter or report summarizing the current land use, any changes in land use during the previous year, any changes in land use during the previous year, any activities or excavations which disturbed the ground or groundwater, and any uses of groundwater. The letter or report should also summarize any anticipated changes in land use, property ownership, or any activities or excavations which may disturb the ground or groundwater, and any anticipated uses of groundwater, during the coming year.

The notification should stipulate that the letter or report that the property owners provide should state that, to the best of their knowledge, they have not violated any of the restrictions or covenants set forth in the initial deed. If any of the restrictions or covenants set forth in the initial deed have been violated, further explanation should be provided. A similar notification should be sent to Will County, regarding the landfill property; however, it should be worded differently, as there is not a requirement for such a report specified in the deed for that property.

It is recommended that the notifications explicitly state that compliance is required and if necessary enforcement through the civil courts may be pursued to ensure that land use restrictions are maintained and verified. It is recommended that all such notifications be sent out simultaneously and include a one-month response time in order to minimize the administrative burden of tracking compliance. A spreadsheet should be maintained to facilitate tracking of

inbound and outbound correspondence and reports, requirements for follow-up and potential IC compliance issues and enforcement actions.

## 5.0 PROGRESS SINCE THE LAST FIVE-YEAR REVIEW

Source removal of impacted soils has been completed for all SRUs at Sites in the GOU. Interim and final remedies were started at several of the SRUs during the first Five-Year Review period, and were completed during the current Five Year Review period, and several others have been started and completed within the current review period. According to the RAOs established in the October 1998 and June 2004 RODs, all actions required to achieve closure status for SRUs at Sites included in the GOU have been completed; however, *Final Closure Reports* for soils have not been approved for Sites L2 and L3 in GRU1 and Sites M1, M3 and M13 in GRU2 as of the writing of this review.

The progress of natural attenuation of groundwater has been monitored on a semi-annual basis since 1998. Changes to the long term monitoring plan were in progress at the time of this review.



## 6.0 FIVE-YEAR REVIEW PROCESS

### 6.1 ADMINISTRATIVE COMPONENTS

The Second Five-Year Review of the GOU at JOAAP was performed by AEROSTAR, under contract to the USACE, on behalf of the United States Army. Representatives from the USEPA and IEPA were notified of the initiation of the second five-year review during monthly project management meetings.

Components of the Five-Year Review included:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection;
- Local Interviews; and
- Five-Year Review Report Development and Review.

The review team included members from the AEROSTAR project management and technical advisory staff with expertise in construction management, engineering, hydrology, chemistry, environmental regulations, and risk assessment. Mr. Thomas Barounis of the USEPA and Ms. Nicole Wilson of the IEPA assisted in the review as representatives for the support agencies.

The schedule of project activities extended from October 2008 to August 2009.

### 6.2 COMMUNITY INVOLVEMENT

Community involvement through the Restoration Advisory Board (RAB) has been ongoing and the schedule for the Second Five Year Review was discussed informally during RAB meetings during the first half of 2008. In addition, correspondence between the regulators and the U.S. Army relating to the Five Year Reviews is copied to the RAB Secretary.

A public notice of the availability of the Five Year Review and associated public comment process was posted in the daily Joliet Herald News and the weekly Wilmington, Illinois Free Press Advocate. A copy of the public notice is included as **Attachment 2**.

### 6.3 DOCUMENT REVIEW

This Second Five-Year Review consisted of a review of relevant documents including remedial design reports, closure reports, work plans, O&M records, facility records, and the October 1998 and June 2004 RODs. Applicable soil clean-up standards, as listed in the October 1998 and June 2004 RODs, were also reviewed. A list of documents that were reviewed during the Second Five-Year Review is presented in **Attachment 3**.

## 6.4 DATA REVIEW

Baseline groundwater monitoring was conducted during the summer and fall of 1998 as part of the RD for the GOU. Previous groundwater analytical data had been collected during the many phases of RI work conducted at the site. Since the implementation of the GOU RD/RA Work Plan, semi-annual groundwater monitoring has been conducted at JOAAP as part of the monitored natural attenuation remedy.

A framework for LTM of the GOU was presented in the 1998 ROD. A detailed work plan for LTM was developed during the RD Phase. A sampling schedule presented in the GOU Final Groundwater RD/RA Work Plan included a list of monitoring wells that were to be sampled, with sampling frequencies and analytical requirements.

A database of groundwater analytical data pertaining to JOAAP from RI through LTM was created and maintained by contractors performing the O&M activities for the GOU. This database was used to produce tables and determine trends for this Five-Year Review. Historical data summary tables for explosives, VOCs, and indicator parameters (including sulfate) are presented in **Attachment 4**. The historical data summary tables were reviewed to verify that all scheduled analyses listed in the GOU Final Groundwater RD/RA Work Plan were completed during the current Five Year Review period.

The US Air Force Center for Environmental Excellence BIOSCREEN model was chosen at the GOU RD/RA Work Plan preparation stage to model potential contaminant travel distances to evaluate whether GMZs assigned to GOU sites would be appropriate. The BIOSCREEN model was also used to evaluate potential contaminant travel distances during the First Five-Year Review period. To remain consistent with previous methodologies, BIOSCREEN was also used to model contaminant transport for the current review period.

### 6.4.1 Trend Analysis

Groundwater elevation trends and relationships between groundwater elevation and contaminant concentrations were evaluated for this review. Plots of groundwater elevation versus time for monitor wells at each GRU site are presented in **Attachment 5**. A comparison between groundwater elevation trends for dry season wet season (April through September) and (October through March) months was also made. These data plots presented in **Attachment 6** demonstrate that although groundwater elevation is generally seasonal and related to precipitation, it is subject to influence by unseasonal events and anomalous seasonal trends. The data plots presented in **Attachment 7** demonstrate that there is generally a discernable relationship between groundwater elevation and contaminant concentration; therefore, it follows that there will frequently be a bias in the contaminant concentration data related to the groundwater elevation which must be considered when attempting to evaluate trends in contaminant concentration. Higher contaminant concentrations are generally detected during sampling events where the groundwater elevation is observed to be higher; however, the observed trends in this relationship may be inverse, from site to site. A possible explanation for this disparity may be that the groundwater acts to flush or desorb contaminants from the formation and into the groundwater at some sites and may serve to dilute contaminants at other sites.

Semi-annual groundwater sampling has been conducted since the baseline sampling event during summer and fall 1998. Historical laboratory analytical results for explosives compounds and sulfate were used to produce plots of selected COC concentrations versus time. These plots are presented in **Attachment 8** and were used to evaluate the effectiveness of natural attenuation at each of the sites. The compounds evaluated were selected based on the COC with the greatest historical concentration relative to its RG. If more than one well was available at a site for trend analysis, wells were preferentially selected where historical RG exceedances were the greatest. Exponential curve fitting was applied to these data plots to calculate first-order rate decay constants and predict estimated clean-up times for the GOU sites, as specified in the ROD. Mann-Kendall and Mann-Whitney U statistical tests were used to evaluate whether statistically valid trends could be documented in the historical dataset evaluated for this review. These steps provided conservative data sets with a sufficient number of detected concentrations from which estimated COC reduction rates may be calculated to project site clean-up times. Specific trends for each site are discussed in the appropriate subsections of Sections 7.2 through 7.4.

#### 6.4.2 Estimated Clean-up Time Calculation

The projected site clean-up times for specific COCs are based on trend analyses to estimate reduction rates at selected wells for individual sites. Estimates of COC reduction rates are determined by fitting an exponential curve through each graph produced in the trend analysis performed in Section 6.4.1. The exponential model ( $y = \exp(x)$ ) is the typical governing equation describing first-order biological degradation ( $C/C_0 = \exp(-kt)$ ) and is the model used by most contaminant transport models to describe the biological degradation component of the transport equation (EPA, 2002, Calculation and Use of First-Order Rate Constants for Monitored Natural Attenuation Studies. EPA/540/S-02/500). Where:

*C = the predicted concentration at time t,*

*C<sub>0</sub> = the concentration at time zero,*

*k = first-order decay rate*

*t = is the time (years) it takes for concentration C<sub>0</sub> to degrade to concentration C*

Where data are sparse and no distinct trend is apparent, an exponential curve was used to maintain consistent results. The clean-up time (t) was then calculated using the highest observed concentration as C<sub>0</sub>. The calculated value of t was then added to the date when the highest observed concentration was detected to get an estimated clean-up year. Graphs and curve fitting analyses for determining first order decay rates are presented in **Attachment 8**. The graphs used to estimate projected clean-up time have R<sup>2</sup> values displayed. The R<sup>2</sup> value is an indicator of how well the equation for the fitted exponential curve represents the observed data. An R<sup>2</sup> value equal to 1.0 is an exact fit, and values that approach zero suggest a very poor fit. For this analysis, R<sup>2</sup> values were generally low because of large variability in the observed data. Clean-up times calculated from trend analyses that have exponential curves with R<sup>2</sup> values closer to zero than one will likely be less reliable. Plotting site data and applying a best-fit exponential curve is a standard way to calculate first-order rate decay constants and predict estimated clean-up times. R<sup>2</sup> values have been included on trend analyses presented as **Attachment 8**. For additional information regarding this analysis and an example calculation for projected clean-up

times, refer to **Attachment 9**. A summary of projected clean-up times derived through these calculations is presented in **Table 12**.

**Table 12 – Estimated Cleanup Times**

Site	Critical Monitoring Well	Critical Compound	Initial Concentration (µg/L) <sup>1</sup>	2nd 5-year Review First-Order Decay Rate (days <sup>-1</sup> )	Date of Initial Concentration	Remedial Goal (µg/L)	ROD Estimated Cleanup Time (yrs)	2nd 5-year review estimate cleanup time (yrs)	2nd 5-year review estimate cleanup date
L1	MW131	2,4,6-TNT	9900	2.00E-05	2007	9.5	340	952	2959
		1,3,5-TNB	No downward trend detected			5.1	340	NA	NA
		2,4,6-TNT	40.8	2.00E-04	1983	9.5	340	20	2003
		1,3,5-TNB	9.2	3.00E-04	1983	5.1	340	5	1988
L2	MW404	RDX	640	6.00E-04	1991	2.6	20	25	2016
L3	MW412	RDX	390	6.00E-04	2004	2.6	50	23	2027
L14	MW508	RDX	840	6.00E-04	1993	2.6	80	26	2019
	MW511	RDX	340	6.00E-04	1995	2.6	80	22	2017
	MW512	RDX	300	6.00E-04	2005	2.6	80	22	2027
M1	Multiple wells	Sulfate	Upward Trend Observed			400000	50	NA	NA
M5	MW207/207R	2,4,6-TNT	16.7	6.00E-04	1998	9.5	50	3	2001
		2,6-DNT	5.53	3.00E-04	1998	0.42	50	24	2022
M6	MW210/210R	2,4-DNT	3200	3.00E-04	1988	0.42	50	82	2070
		2,6-DNT	1400	6.00E-04	1988	0.42	50	37	2025
		2,4,6-TNT	820	1.00E-03	1988	9.5	50	12	2000
	MW212R	2,4-DNT	Upward Trend Observed			0.42	50	NA	NA
		2,6-DNT	Upward Trend Observed			0.42	50	NA	NA
		2,4,6-TNT	3200	3.00E-04	2004	9.5	50	53	2057
		2-Nitrotoluene	Upward Trend Observed			62	50	NA	NA
	MW307	2,4,6-TNT	21.6	3.00E-04	1991	9.5	50	8	1999
	MW652	2,4-DNT	14500	6.00E-04	1999	0.42	50	48	2047
		2,6-DNT	14500	6.00E-04	1999	0.42	50	48	2047
		2,4,6-TNT	3400	3.00E-04	2005	9.5	50	54	2059
		2-Nitrotoluene	98000	6.00E-04	2005	62	50	34	2039
M7	MW124/124R	2,4-DNT	53.2	3.00E-04	1981	0.42	50	44	2025
		RDX	46	6.00E-04	1985	2.6	50	13	1998
		PCE	6	3.00E-04	1985	5	50	2	1987
M8	MW148	PCE	7	3.00E-04	2000	5	50	3	2003
M13	MW321	2,4-DNT	120	3.00E-04	1991	0.42	50	52	2043
		2,4,6-TNT	14	6.00E-04	2005	9.5	50	2	2007
	MW350	2,4-DNT	43	3.00E-04	1991	0.42	50	42	2033

Projected cleanup times are only approximations based on conservatively estimated COC reduction rates. The target concentration used to calculate the cleanup time for site remediation is the compound-specific RG. The calculated clean-up time is for a specific compound to attenuate below its RG. The COC reduction rate includes the physical, chemical, and biological attenuation mechanisms active within the aquifer. Discussions of specific site clean-up times are included in the appropriate sub-sections of Sections 7.2 through 7.4.

### **6.4.3 Mann-Kendall and Mann-Whitney U Statistical Tests**

oratory analytical results for groundwater obtained during the LTM were evaluated using the Mann-Kendall analysis. The Mann-Kendall analysis is a nonparametric statistical test used to evaluate whether there are statistically valid trends in groundwater contamination concentrations in a monitoring well. The software used for this analysis for the current and previous Five Year Reviews was obtained from the Wisconsin Department of Natural Resources, and is set up to analyze data from the ten most recent monitoring events with a consistent time-lapse between events. The test does not evaluate the rate at which concentrations are changing over time.

The Mann-Kendall Test is not valid for data that exhibit seasonal behavior. For data exhibiting seasonal behavior, testing only data from the seasons with the highest contaminant concentrations may produce valid results. To demonstrate that natural attenuation is effective, the statistical test must show decreasing contaminant concentrations at an appropriate confidence level. The Mann-Kendall analysis gives result at both the 80% and the 90% confidence level. If no trend exists at the 80% confidence level, the test will indicate whether the detections in a well are stable. Non-stable results indicate that there is too much scatter in the data to make a valid determination.

The Mann-Kendall analysis does not take into account the magnitude of scatter in the data. A data set with a great deal of scatter may return a Mann-Kendall analysis indicating there is no trend, when, in fact, no conclusion can be drawn regarding the trend because of data variability. In this case, additional data collection may be necessary to determine that the plume is stable, declining, or increasing. As a simple test, the coefficient of variation (CV) can provide an indication of the scatter in the data. The CV should be less than or equal to 1 to indicate that the no-trend hypothesis also indicates a stable plume configuration.

Historical plots of groundwater elevation and contaminant concentration data indicate that the groundwater elevation does not vary regularly with the seasons and also indicates the contaminant concentrations are often affected by differences in groundwater elevation. These variations can result in a great deal of variability or scatter in the data that may make it difficult to determine a trend; therefore in order to provide an additional level of evaluation, the Mann-Whitney U test was also used to evaluate the data for trends.

The Mann-Whitney U test is applicable to data that may or may not exhibit seasonal behavior. The software used to complete the Mann-Whitney U tests was obtained from the Wisconsin Department of Natural Resources, and is set up to analyze data from the eight most recent monitoring events with a consistent time-lapse between events. The Mann-Whitney U test gives result at the 90% confidence level.

As was done during the trend analysis, the Mann-Kendall and Mann-Whitney U tests were performed on data from wells exhibiting the highest concentration at each site. Groundwater analytical data and groundwater elevation data were plotted to determine if seasonal variability in the data was apparent. Groundwater analytical results appeared to vary with groundwater elevation irrespective of the season. In many cases concentrations appear to increase with increasing groundwater elevation. In other cases concentrations appear to decrease with increasing groundwater elevation. This could merely indicate a lag in the response time between rising or falling groundwater and the resultant change in concentration.

Data from all wells evaluated using the Mann-Kendall test were segregated according to the season collected and were re-analyzed. Any data collected during October through March was assumed to be dry season data and any data collected during April through September was assumed to be wet season data. These ranges were selected based upon on average historical precipitation data for the area collected since 1871.

Mann-Kendall and Mann-Whitney U analyses are presented in **Attachment 10** and are summarized by site. Discussions of statistical trend analysis results by site have been included in the appropriate sub-sections of Sections 7.2 through 7.4.

Because the wells exhibiting the highest concentrations are normally associated with majority of contaminant mass at a site, the trends exhibited by these wells will provide an indication to what is occurring near the historical sources of contamination at each site.

Decreasing trends near a source will indicate a likelihood that natural attenuation is occurring. An increasing trend near a source may indicate additional source loading to groundwater and consequently a growing plume; however in this case, increasing trends at wells near sources are expected because removal activities that are currently ongoing or recently completed will have likely mobilized contaminants causing spikes in groundwater concentrations. The use of statistical trend tests was limited to the same wells used in the other analyses for consistency in reporting results.

#### **6.4.4 Modeling**

Evaluation of appropriate groundwater model types was completed for JOAAP groundwater sites. Although three different model complexities were identified and discussed in the 35% Groundwater RD Report, the site-specific plume information, expected data output, and perceived data usage affected the model selection. Ultimately, one groundwater model was identified as being capable of providing information to justify monitored natural attenuation through enumeration of expected transport distance from known contaminated well locations.

For the purposes of the RD, and now during the Five-Year Review process, BIOSCREEN was used to predict the distance the plume will extend from the source area(s) at each site. The most contaminated monitoring well at each site was chosen to identify the distance from the suspected source to the GMZ. Iterative model runs were completed to evaluate the potential for

contaminant migration in excess of RGs to locations at or beyond site GMZs. BIOSCREEN modeling run results for this Five-Year Review are included in **Attachment 11**.

The assumptions necessary for model inputs are extremely conservative and, therefore, the predicted distances of RG exceedances are likely much further from the source than what sampling results have actually shown them to be. For example, the input for source half-life was set as infinite. Other examples of conservatism in the model include no retardation factors being applied, despite favorable site conditions for retardation, and for many of the sites, no decay coefficient was incorporated into the model.

During the RD, decay coefficients incorporated into model runs were for RDX and TNB and were obtained from the Waterways Experiment Station (WES) report that evaluated the feasibility of natural attenuation at Site L1 (WES, 1998). Except for Site L1-MW131 and Site M6-MW212, the decay constants that were incorporated into the current BIOSCREEN analysis were obtained from projected clean-up times calculated in Section 6.4.2. The decay rate used in the BIOSCREEN Model for Site L1-MW131 was obtained by calculating the bulk decay rates between MW131 and MW212 between July 1999 and October 2007, and then averaging the results of each bulk decay rate.

The bulk decay rates for each monitoring period were calculated following EPA's Calculation and Use of First-Order Rate Constants for Monitored Natural Attenuation Studies, November 2002. The highest and lowest bulk decay rates were also projected out (in distance) to the RG value for the constituent evaluated to determine the predicted distance the plume could migrate without the effects of retardation or dispersion. The average bulk decay rate was also calculated between at Site M6-MW212 and MW123 and was used as the decay rate in the BIOSCREEN Model. The calculations of the bulk decay rates are included in **Attachment 8**.

A summary of the BIOSCREEN modeling inputs, results and first order decay rate constants is presented in **Table 13**. The table also includes the distances that COCs may travel before concentrations are predicted to attenuate to the RG. Discussions of BIOSCREEN modeling results by site have been included in the appropriate sub-sections of Sections 7.2 through 7.4.

**Table 13 - BIOSCREEN Inputs and Estimated Transport Distances**

Site	Well	Contaminant	Initial Concentration (µg/L)	RD/RA Decay Rate (yr <sup>-1</sup> )	Second 5-year Review Decay Rate (yr <sup>-1</sup> )	Remedial Goal (µg/L)	RD/RA Transport Distance to Reach RG (feet)	Second 5-year Review Transport Distance to Reach RG (feet) Bioscreen Model	Second 5-year Review Transport Distance to Reach RG (feet) Bulk Attenuation
L1	MW131	1,3,5-TNB	4670	3.65E-03	0.012 <sup>(1)</sup>	5.1	<1000	<1000	~370 to ~620
	MW131	2,4,6-TNT	9900	NA	0.0083 <sup>(1)</sup>	9.5	NA	<1400	~875
L2	MW404	RDX	640	2.97E-03	0.21	2.6	<1500	<750	NC
L3	MW412	RDX	390	2.97E-03	0.11	2.6	<35	<900	NC
L14	MW508	RDX	840	2.97E-03	0.73	2.6	<1500	<300	NC
M6	MW212R	2,4-DNT	17000	NA	0.46 <sup>(1)</sup>	0.42	<5000	<800	~800 to 900
	MW315	2,4-DNT	8.9	NA	0.37	0.42	<5	<25	NC
M7	MW124	2,4-DNT	53.2	NA	0.11	0.42	<5	<450	NC
M13	MW321	2,4-DNT	120	NA	0.22	0.42	<450	<2100	NC

NC = Not Calculated, NA = Not Available, (1) = Decay Rates calculated from via the Bulk Attenuation Method

## 6.5 SITE INSPECTION

Representatives from AEROSTAR conducted site inspections on October 22 and 23, 2008. The purpose of the inspections was to assess the current site conditions, evaluate the integrity of historical and current RA activities, evaluate current access controls and use restrictions, and evaluate the feasibility of proposed RA activities at each respective site. Inspection of individual monitoring wells is conducted by the O&M contractor as part of each semiannual groundwater monitoring event. These inspection activities include monitoring well inspection for condition, functionality, and security.

## 6.6 INTERVIEWS

Interviews were conducted with various parties affiliated with the JOAAP project and sites. An interview was conducted on October 22, 2008 with the RAB co-chair, Reverend Alvin Abbott. Discussion was directed toward the impacts on, and concerns of, the community in relationship to the historical, current and future activities at JOAAP. A copy of the interview questions and responses from Rev. Abbott are included in **Attachment 13**.

An interview was also conducted with JOAAP Site Manager, Mr. Arthur Holz. Interview questions/discussion were directed toward the performance and management of the JOAAP



project. A copy of the interview questions and responses from Mr. Holz are included in **Attachment 13**.

An interview was conducted with the Waste Services Manager for Will County Waste Services, Mr. Dean Olson. Discussion and questions were directed toward assessing new information regarding site operations, evidence of contamination, or changes regarding enforcement of institutional and access controls at the Will County Landfill. A copy of the interview questions and responses from Mr. Dean Olson are included in **Attachment 13**.

## **7.0 TECHNICAL ASSESSMENT**

The following are responses to three technical assessment questions posed by the Comprehensive Five-Year Review Guidance (USEPA, June 2001) regarding the monitored natural attenuation remedy for the GOU. A discussion of criteria most relevant to assessing natural attenuation is followed by a site-specific assessment. Site-specific information is presented in Sections 7.2 through 7.4 of this report. Water level information and interpreted flow directions have been derived using data collected during the October 2007 monitoring event.

### **7.1 NATURAL ATTENUATION PROCESSES**

The natural attenuation process is influenced by site-specific factors such as geology, hydrogeology, chemistry, and biological reactions. Monitoring of these processes is also influenced by short-term and long-term variations in precipitation. A discussion of each of these criteria and other factors influencing natural attenuation processes is presented below.

#### **7.1.1 Geology**

JOAAP is located in an area termed the Central Lowlands Physiographic Province, which is typified by sub-horizontal carbonate and clastic sedimentary rocks. These sedimentary rocks are most often covered by varying thicknesses of sands, silts, and clays deposited during Pleistocene glaciation.

Two glacial deposits have been identified at JOAAP. The Henry Formation is 5 to 25 ft thick and underlies most of the central and western parts of the MFG Area. It includes sandy and gravelly silts and distinct beds of sand and gravel. The Wedron Formation is present in the upland area, east of the main part of the MFG Area and across the LAP Area. The Wedron formation is a till composed of clayey silt with minor sand. The combined thickness of both Wedron and Henry formations is reported to be generally less than 25 ft in the western part of the MFG Area, and 60 to 70 ft in the eastern part of the MFG Area.

The rock strata in the vicinity of JOAAP dip gently to the east at a rate of about 10 ft per mile. A previous investigation which included a photogeologic study concluded that there were two sets of bedrock fractures in the vicinity of JOAAP, a northwest-southeast set, and a northeast-southwest set. The frequency and orientation of these fractures could have a significant influence on the transport of contaminants within the dolomite bedrock. The Sandwich Fault Zone reportedly passes through the eastern portion of JOAAP, but is significantly north of the GOU and is not believed to have an effect on groundwater flow or contaminant transport in the GRUs.

#### **7.1.2 Hydrogeology**

Three groups of aquifers are generally recognized in the area including JOAAP. These include a surficial aquifer within the surficial glacial sediments, a shallow bedrock aquifer, and a deep bedrock aquifer. The shallow bedrock aquifer is composed of dolomites of Silurian Age and may

underlie glacial sediments, or may be exposed at the land surface. The Silurian dolomite is typically between 50 and 100 ft thick in the study area. The Maquoketa Group is about 150 ft thick and includes layers of low-permeability shale that serve as a regional aquitard and separate the shallow and deep bedrock aquifer systems. The deep bedrock system underlying the Maquoketa Group includes the Galena-Platteville Dolomite, the St. Peters Sandstone, and the Mt. Simon Formation, and supplies most of the groundwater used in northern Illinois.

Groundwater flow in the surficial and shallow bedrock aquifers at JOAAP is generally towards the west. The potentiometric surface across the facility ranges from an elevation of 610 to 530 ft above mean seal level (AMSL) and varies significantly between extended wet and dry periods.

Hydrogeological characteristics at each site will influence the natural attenuation mechanisms. These characteristics include the number of aquifers, and aquitards in which contaminants are transported, the variability of hydraulic conductivity, depth to groundwater, groundwater velocity, hydraulic gradients, and fracture flow versus laminar flow.

Groundwater elevation data collected during October 2007 well gauging activities were used to prepare water table maps and potentiometric surface maps for the GOU sites, except Site M10. At Site M3, monitoring wells are screened in the shallow bedrock aquifer, and therefore, no water table map was generated. The configuration of the water table on the recent water table maps is similar to that of the water table maps produced during the RI and during the First Five-Year Review, and indicate consistent gradients and flow directions. The potentiometric surface across the facility ranges from 522 to 546 ft AMSL. The horizontal component of groundwater flow in the glacial drift and shallow bedrock aquifer systems is predominantly to the west toward the major surface water drainages. This westerly flow in the uppermost aquifer system is evident in the decline in the water table elevation from east to west. The predominant flow from east to west is influenced locally by the surface topography and the larger streams in the area.

Historic water levels measured at each site were also plotted versus time. The plots were evaluated to determine unusual fluctuations in elevations that may have occurred which might affect groundwater flow at a particular site. These plots are presented in **Attachment 5**.

Groundwater elevation data collected during the October 2007 and previous sampling events were used to calculate horizontal gradients (**Table 14**). Horizontal gradients are more variable in the glacial overburden aquifer due to soil heterogeneity. Horizontal gradients were less variable in the shallow bedrock aquifer.

**Table 14 - Horizontal Groundwater Gradient**

Site	Well ID	Average Horizontal Groundwater Gradient (vertical feet per horizontal foot)									
		Oct-07	Oct-06	Oct-05	Oct-04	Oct-03	Oct-02	Oct-01	Oct-00	Oct-99	Overall
LAP											
L1	MW176	0.0141	0.0138	0.0105	0.0082	0.0075	0.0078	0.0125	0.0069	0.0074	0.0096
	MW174										
	MW175										
	MW171										
L2	MW501	0.0079	0.0057	0.0154	0.0175	0.0164	0.0153	0.0208	0.0178	0.0147	0.0146
	MW620										
L3	MW1	0.0179	0.0189	0.0219	0.0251	0.0237	0.0215	0.0240	0.0239	0.0243	0.0225
	MW3										
L14	MW508	0.0047	0.0484	0.0085	0.0077	0.0077	0.0084	0.0075	0.0077	0.0079	0.0116
	MW601										
MFG											
M1	MW231	0.0033	0.0034	0.0035	0.0122	0.0121	0.0142	0.0083	0.0125	0.0175	0.0105
	MW648										
	MW104										
	MW643										
M5	MW355R	0.0008	0.0006	0.0016	NA	0.0024	0.0016	0.0024	0.0189	0.0154	0.0066
	MW114R										
	MW354R										
M6 (N)	MW664	0.0265	0.0037	0.0174	NA	0.0222	0.0211	0.0270	0.0224	0.0130	0.0185
	MW662										
	MW320R										
	MW166R										
M6 (S)	MW210R	0.0076	0.0081	NA	NA	NA	NA	NA	NA	NA	NA
	MW162R										
	MW309										
	MW212R										
M7	MW363	0.0049	0.0051	0.0143	NA	0.0116	0.0144	0.0096	0.0118	0.0104	0.0103
	MW661										
M8	MW323R	0.0035	0.0034	0.0015	NA	0.0004	0.0011	0.0003	0.0177	0.0143	0.0063
	MW342R										
M13	MW126R	0.0033	0.0052	0.0057	NA	0.0068	0.0033	0.0063	0.0035	0.0036	0.0046
	MW363										
AVERAGE SITE GRADIENT		0.0078	0.0044	0.0081	0.0084	0.0087	0.0083	0.0091	0.0149	0.0113	

Groundwater elevation data were also used to calculate vertical gradients between the overburden and bedrock for well pairs located throughout JOAAP (**Table 15**). Based on these data, a downward component of flow between the overburden and bedrock is generally present east of the outwash plain. Exceptions are noted in well pairs located adjacent to Prairie Creek in the LAP Area, where gradients are upward, indicating that this creek is an area of shallow groundwater discharge. Another exception is well pair MW166 and MW320 at the TNT Ditch (Site M6) in the MFG Area, where the vertical gradient indicates upward flow and well MW320 has occasionally been observed to be under artesian conditions. In contrast, vertical gradients west of the outwash plain are generally considerably less than vertical gradients to the east. This suggests that groundwater tends to flow horizontally within both the overburden and bedrock in western portions of the site. It should be noted that west of the outwash plain, the overburden thins to less than 5 feet in some areas; and the water table in this area is often encountered at or near the overburden/bedrock contact.

The hydraulic conductivity of the bedrock and overburden at JOAAP was calculated from various slug tests performed as part of previous studies and the RIs (OHM, 1997, Dames & Moore, 1997). Overburden hydraulic conductivity values are reported to range from  $1.5 \times 10^{-6}$  to  $1.8 \times 10^{-2}$  centimeters per second (cm/sec). This range demonstrates the variability of glacial deposits, which range from clays and silt deposits to gravelly sands in the outwash plain. The average hydraulic conductivity of the overburden was calculated to be  $1.7 \times 10^{-3}$  cm/sec.

**Table 15 - Vertical Groundwater Gradients (LAP Area)**

	Well	Average Vertical Groundwater Gradient (feet per foot)									
Site	ID	Oct-07	Oct-06	Oct-05	Oct-04	Oct-03	Oct-02	Oct-01	Oct-00	Oct-99	Pair
LAP AREA											
L1	MW178	-0.3632	-0.2772	-0.4261	NA	-0.7053	-0.8321	-0.3685	-0.6053	-0.8112	-0.5486
	MW176										
	MW172	0.0113	-0.0220	0.0031	NA	0.0059	0.0025	0.0044	0.0069	0.0025	0.0018
	MW173										
	MW177	0.0718	0.1000	-0.5155	NA	-0.0485	-0.1522	0.0511	0.1684	-0.1684	-0.0617
	MW171										
	MW401	0.0200	0.0402	0.0372	NA	0.0218	0.0382	0.0176	0.0213	0.0185	0.0269
	MW610										
L2	MW621	0.0781	0.0060	0.0013	NA	0.0012	-0.0022	0.1353	0.0000	-0.0013	0.0273
	MW620										
L3	MW631	0.2132	0.0729	0.0517	NA	0.0744	0.0343	0.0696	0.0505	0.0309	0.0747
	MW630										
L14	MW602	-0.1372	-0.0859	-0.1288	NA	-0.0879	-0.1024	-0.1132	-0.0882	-0.0452	-0.0986
	H-7										
	MW604	0.0252	0.0256	0.0120	NA	0.0231	0.0150	0.0011	0.0191	0.0261	0.0184
	MW603										

**Table 15 continued - Vertical Groundwater Gradients (MFG Area)**

	Well	Average Vertical Groundwater Gradient (feet per foot)									
Site	ID	Oct-07	Oct-06	Oct-05	Oct-04	Oct-03	Oct-02	Oct-01	Oct-00	Oct-99	Pair
MANUFACTURING AREA											
M1	MW640	0.0562	0.0147	0.0070	NA	0.0237	-0.0237	-0.0179	0.0194	0.0083	0.0110
	MW351										
	MW642	-0.0134	-0.0207	-0.0196	NA	-0.0183	-0.0224	-0.0171	-0.0173	-0.0140	-0.0179
	MW641										
M6	MW166R	NM	NM	-0.0952	NA	0.0007	NM	NM	NM	-0.9059	-0.3335
	MW320R										
	MW312	-0.1950	-0.0002	-0.0042	NA	0.0002	0.0000	NM	NM	0.0000	-0.0332
	MW311										
	MW651	-0.2253	-0.2235	-0.1892	NA	-0.2678	-0.2334	-0.4149	-0.1693	-0.1789	-0.2378
	MW650										
	MW319	0.0015	-0.0812	0.0014	NA	0.0003	-0.0011	-0.0010	-0.0010	-0.0333	-0.0143
	MW318										
	MW313	0.2363	0.0087	-0.2000	NA	-0.0059	-0.1148	-0.0556	-0.0166	-0.0398	-0.0143
	MW654										
	MW653	0.0511	-0.1909	-0.1920	NA	-0.2208	-0.2011	-0.1774	-0.1684	0.0114	-0.1360
	MW652										
	MW317	-0.0104	-0.0139	-0.0024	NA	-0.0086	-0.0090	-0.0134	-0.0107	-0.0155	-0.0105
	MW316										
	MW310R	-0.2730	-0.2564	-0.2357	NA	-0.2875	-0.2140	-0.2597	-0.2545	0.3134	-0.1834
	MW309										
	MW315	-0.0246	0.0027	-0.0023	NA	0.0006	-0.0224	-0.0058	-0.0063	-0.0327	-0.0114
	MW314										
	MW308	-0.2290	-0.2216	-0.3171	NA	-0.2607	-0.3198	-0.2094	-0.2483	-0.3130	-0.2649
	MW307										
M7	MW217	0.0044	0.0148	0.2821	NA	0.0877	0.3153	-0.0256	0.1448	0.3351	0.1448
	MW216										
	MW661	-0.0503	-0.0562	0.0574	NA	-0.0005	0.0635	-0.0639	0.0097	0.0837	0.0054
	MW660										
	MW158	NM	NM	-0.1062	NA	0.3438	NM	0.0092	-0.0510	-0.0322	0.0327
	MW307										
M13	MW322	-0.0745	-0.0973	-0.1947	NA	-0.1273	-0.1827	0.0062	NM	-0.2053	-0.1251
	MW321										
	MW126R	NM	-0.0308	-0.1500	NA	NM	NM	NM	NM	NM	-0.0904
	MW362										
	MW363	0.0227	-0.0043	-0.2656	NA	NM	NM	NM	NM	NM	-0.0824
	MW354										

The hydraulic conductivity values calculated for bedrock are less variable and have been observed to range from  $2.0 \times 10^{-4}$  to  $1.6 \times 10^{-3}$  cm/sec, with an average of  $4.9 \times 10^{-4}$  cm/sec. These differences in hydraulic conductivity complicate the evaluation of the progress or effectiveness of natural attenuation of the GOU sites. Groundwater flow velocities were calculated for GOU sites using hydraulic conductivity data, horizontal gradients, and effective porosity, (Table 16).

**Table 16 - Groundwater Flow Velocities**

Site	Groundwater Flow Velocity (feet per day)									
	Oct-07	Oct-06	Oct-05	Oct-04	Oct-03	Oct-02	Oct-01	Oct-00	Oct-99	Average
<b>LAP AREA</b>										
<b>L1</b>	0.0012	0.0012	0.0009	0.0007	0.0007	0.0007	0.0011	0.0006	0.0006	0.0009
<b>L2</b>	0.1206	0.0856	0.2320	0.2645	0.2479	0.2312	0.3140	0.2660	0.2222	0.2204
<b>L3*</b>	0.2710	0.2855	0.3330	0.3794	0.3643	0.3250	0.3622	0.3612	0.3673	0.3388
<b>L14*</b>	0.0723	0.0732	0.1290	0.1164	0.1164	0.1270	0.1132	0.1164	0.1194	0.1093
<b>MANUFACTURING AREA</b>										
<b>M1</b>	0.0021	0.0021	0.0218	0.0076	0.0075	0.0089	0.0052	0.0078	0.0109	0.0082
<b>M5</b>	0.0139	0.0102	0.0274	NA	0.0408	0.0272	0.0402	0.3214	0.2619	0.0929
<b>M6 (N)</b>	0.2158	0.0308	0.1410	NA	0.1804	0.1714	0.2194	0.1820	0.1056	0.1558
<b>M6 (S)</b>	0.0620	0.0654	NA	NA	NA	NA	NA	NA	NA	0.0637
<b>M7</b>	0.0314	0.0324	0.0903	NA	0.0734	0.0911	0.0608	0.0747	0.0658	0.0650
<b>M8</b>	0.0081	0.0077	0.0034	NA	0.0009	0.0025	0.0006	0.0401	0.0324	0.0120
<b>M13</b>	2.5639	3.9290	4.3000	NA	5.1388	2.4938	4.7646	2.6450	2.7206	3.5695
<b>Average Velocity</b>	0.4825	0.6793	0.9124	1.3294	1.0869	0.5572	1.0171	0.6526	0.6373	

### 7.1.3 Surface Water Hydrology

The topography at JOAAP is gently undulating. In most areas of the LAP and MFG Areas, the land slopes towards Prairie Creek, with a general overall slope to the southwest, towards the confluence of the Des Plaines and Kankakee Rivers. Surface elevations range from up to 700 ft AMSL in upland areas of the northern LAP Area, down to as low as 515 ft AMSL in the southwest corner of the MFG Area, near the Kankakee River. The LAP Area drains via several creeks and ditches to the Kankakee River. The MFG Area drains via several creeks, ditches, and storm water conveyances to the Des Plaines and Kankakee Rivers. The Grant Creek and Prairie Creek basins cover the majority of the land area of JOAAP. Depending on the hydraulic conditions the streams at JOAAP may either be net influent (gaining) or effluent (losing) with respect to the shallow aquifer.

#### **7.1.4 Chemistry**

The chemical characteristics of each aquifer in which a contaminant exists, the number and type of contaminants present at a site, and the complexity of the physical/chemical attenuation processes occurring within the aquifer will affect the rate of natural attenuation. The major processes affecting contaminant attenuation are advection, dispersion, diffusion, sorption, and biodegradation.

The transport of contaminants in multiple aquifers may require the calculations of multiple sets of coefficients that describe the transport of a constituent in each of the aquifers. There are two main aquifers affected at JOAAP, the unconsolidated aquifer and the underlying Silurian dolomite bedrock aquifer. However, most contaminant detections occur in the unconsolidated aquifer. The Maquoketa Shale, underlying the Silurian dolomite, is an aquitard that significantly retards the downward movement of contaminants.

The Phase I and II RIs (OHM, 1997, and Dames & Moore, 1993, 1994) and the Proposed Plan (U.S. Army, 1997) identified three groups of COCs at JOAAP consisting of explosives, VOCs, and metals. The number of contaminants present at a site is also a significant factor because the transport and decay rates are different for each compound. The physical/chemical attenuation properties of a contaminant within each aquifer will affect its transport and decay.

##### **7.1.4.1 Advection**

Advective transport is defined as the movement of a solute with groundwater flow, such that the entire mass of the solute follows flow lines downgradient from the source. A non-reactive species introduced into the subsurface from a source area, following advective transport only, would arrive at a location downgradient as a sharp concentration front, or as a slug of contaminant. Solutes would migrate at a rate equal to the average linear velocity of the water (Freeze and Cherry, 1979). Therefore, differential average velocities through various aquifer matrices would result in some portion of the introduced contaminant moving through the matrix faster than other portions. Because advection will transport contaminants at different rates in each unit, the concentrations of contaminants measured in a composite sample collected from the aquifer at a location downgradient would be less than at the source (Fetter, 1993). This would provide a decrease in overall concentration of the contamination as the contaminant is transported away from the source.

##### **7.1.4.2 Dispersion**

The tendency of a solute to spread out and mix as it moves through the aquifer is termed dispersion. Dispersion is caused by both microscopic processes (mixing in pores, friction of water moving around individual grains) and macroscale processes (variations in hydraulic conductivity, aquifer stratigraphy, and tortuosity of flow paths). Dispersion will cause some of the contaminants to move faster than predicted by the average linear velocity and some to move slower. Mixing can occur both parallel to the groundwater flow direction (longitudinal dispersion) and perpendicular to the flow path (transverse dispersion). Longitudinal dispersion will result in a contaminant arriving at a location somewhat ahead of that predicted by the average linear velocity, but at lower concentrations. Transverse dispersion will result in the



spreading of contaminants, both horizontally and vertically, as the solute moves through the aquifer. Although the total mass of the solute in the aquifer will remain the same, the solute mass occupies an increasingly larger volume of the aquifer during transport and the maximum concentration of the contaminant in the aquifer decreases with time. Mechanical dispersion can be expressed in terms of a dispersivity coefficient (length) multiplied by the average linear velocity (length/time) and therefore has units of L<sup>2</sup>/time.

#### **7.1.4.3 Diffusion**

Diffusion refers to the movement of a solute from regions of high concentrations to areas with lower concentrations. Diffusion is independent of fluid flow and is mainly a function of concentration gradients. At very low groundwater flow velocities, diffusion can be a more important contributor than dispersion for spreading contaminant mass, whereas at higher velocities, dispersion becomes dominant. In low permeability materials, diffusion can cause contaminants to move considerable distances into the matrix. In situations where the aquifer is fractured, diffusion will occur as contaminant mass moves from the fracture fluid into a lower permeability porous matrix between fractures. This will result in the apparent loss of contaminant mass from the fracture flow regime. Likewise, if greater concentrations of contaminants are located in the aquifer matrix compared with local groundwater, diffusion will result in contaminant mass transfer back from the aquifer matrix to the groundwater system. Often this effect is observed at the latter stages of remediation as a tailing effect, when removal concentrations reach asymptotic levels.

#### **7.1.4.4 Sorption**

Solutes may be adsorbed or desorbed by soil and groundwater organic matter present in the aquifer. The amount of contaminant that is adsorbed is a function of soil grain size, mineral composition, organic content, solute composition, and solid concentration. Of the variety of soil components that can influence adsorption rates, organic carbon content and cation exchange capacity are generally the most significant. The adsorption capacity of an aquifer is typically expressed by the soil/water partitioning coefficient, or distribution coefficient ( $K_d$ ).  $K_d$  is typically estimated as the organic carbon/water distribution coefficient ( $K_{oc}$ ) of a specific chemical multiplied by the soil organic carbon content ( $f_{oc}$ ). The effect of the aquifer matrix on the transport rate of organic chemicals in the saturated zone can be estimated by determining the retardation factor ( $R_f$ ) for a chemical species.

The  $R_f$  describes the effect of sorption in decreasing the rate of contaminant transport in the aquifer. For non-reactive species such as chloride, the transport rate would be equal to the groundwater flow velocity ( $R_f = 1$ ).

The retardation rate is calculated as follows:

$$R_f = 1 + (P_b/n) \times K_d$$

Where:

$R_f$  = Retardation Factor (unitless)

$P_b$  = aquifer bulk density (g/m<sup>3</sup>)

$n$  = effective porosity (unitless)

$K_d$  = distribution coefficient (ml/g)

And  $K_d = K_{oc} \times f_{oc}$

Where:

$K_{oc}$  = organic carbon partition coefficient (ml/g)

$f_{oc}$  = organic carbon content (unitless)

#### **7.1.4.5 Bioattenuation**

Bioattenuation is the process by which contaminants are transformed from toxic to non-toxic byproducts through biologically mediated reactions that occur naturally in the groundwater system. Whereas physical attenuation processes reduce the contaminant concentrations and their overall toxicity in groundwater, bioattenuation includes biological and chemical processes actually reduce the total mass of contaminants. Loss of contaminant mass will reduce the volume of contaminants in the aquifer and result in overall plume shrinkage.

#### **7.1.4.6 Biotic Transformation**

Microbial activity can result in biotic transformation of explosive compounds in groundwater. Microbial growth is generally enhanced by factors including; consistent groundwater flow, a neutral pH, moderate groundwater temperature, and a source of carbon and nutrients for microbial growth; and electron donors/acceptors for energy production. Aerobic and anaerobic biodegradation of explosive compounds has been previously demonstrated. Trends in electron donor and acceptor data are still vague at most explosives contaminated sites. Further investigation will be required at JOAAP to determine how useful these bioparameters will be for the LTM program.

#### **7.1.4.7 Attenuation of Metals.**

Based on the pre-design investigation results, there are no metals exceedances of RGs in the GOU sites. Therefore, no potential exists for metals concentrations greater than site RGs to migrate beyond the GMZ boundaries. The concentrations of metals that exist below RGs at GOU sites will continue to be attenuated through the process of dispersion.

## 7.2 GRU1 – EXPLOSIVES IN GROUNDWATER

GRU1 is entirely in the LAP Area and consists of separate plumes emanating from sources in Sites L1, L2, L3, and L14 (**Attachment 1**). The Phase I and II RI reports concluded that explosives were the only contaminants found in these plumes that could pose a risk to human health or the environment. The RI Reports also concluded that GRU1 plumes occurred within the glacial drift aquifer at these sites, and the plumes extended into the shallow bedrock aquifer at Sites L1, L2, and L3, but not at Site L14.

The following discussions are a summary of the groundwater LTM water quality results, along with a summary of site characteristics. The purpose of these summaries is to evaluate whether the monitored natural attenuation remedy is performing adequately at each site.

### 7.2.1 Site L1

Site L1 (Figure in **Attachment 1-2**) is approximately 80 acres and was used for demilitarization and reclamation of various munitions including de-fusing of munitions, removal of the explosives, and recycling of the casings. This site contains a 10-acre ridge and furrow system that was used to evaporate pink water discharge from an on-site sump. The monitoring wells within Site L1 consist of eight overburden wells, one combined well, seven deep bedrock wells, and one surface water monitoring location (figures in **Attachment 1**). Site L1 has received closure status for soils as documented in the *Final Closure Report, Sites L1, L7, L8, L9, L10, L14 and M2* (MWH, October 2006).

#### 7.2.1.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

Chemistry – Groundwater from Site L1 was sampled for explosives during October 2007. Natural attenuation indicator parameters have not been sampled since October 2003. Historic data tables are included in **Attachment 4**. The extent of the explosives plume in groundwater and individual explosives compound detections during October 2007 at Site L1 have been included in figures presented in relevant sections of **Attachment 1**.

The RG for TNB (5.1 µg/L ) has routinely been exceeded in well MW131 (figures in **Attachment 1**). Concentrations of TNB at MW131 have fluctuated markedly, between non-detectable levels and 4,400 µg/L, during this review period and appear to be influenced by changes in groundwater elevation. TNB was detected a concentration of 1,700 µg/L at MW131 during October 2007. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses did not indicate a stable trend in concentration versus time for TNB at MW131 (**Attachment 10**). Monitoring well WES1, a shallow bedrock well just downgradient of the soil source area, has routinely had TNB RG exceedances. Downgradient overburden and bedrock wells MW172 and MW173 have not had exceedances of TNB since 1991 (figures in **Attachment 1**).

The RG for TNT (9.5 µg/L) has routinely been exceeded at well MW131 (figures in **Attachment 1**). Concentrations of TNT have fluctuated markedly, between 150 and 9,900 µg/L, during this review period and appear to be influenced by changes in groundwater elevation. TNT was

detected a concentration of 1,100 µg/L at MW131 during October 2007. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses did not indicate a stable trend in concentration versus time for TNT at MW131.

Monitoring well WES1, a shallow bedrock well just downgradient of the soil source area, has routinely had TNT RG exceedances. Downgradient overburden well MW172 has not had an RG exceedance for TNT since 1986. Although downgradient bedrock well MW173 has routinely exceeded the RG for TNT, the detected concentration was 7.2 µg/L during October 2007, and is below the RG. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time for TNT at MW173.

In **Attachment 8**, a best-fit curve is extrapolated through each of the explosives compounds presented on the graph. To provide an estimate of the time required for the selected explosives compound to naturally degrade to less than site RGs, the best-fit curve in **Attachment 8** was used to project a potential contaminant reduction rate. **Table 12** summarizes the results of this analysis. Given the equation to the best-fit curve for 1,3,5-TNB and 2,4,6-TNT at MW172, the estimated time at which this compound will naturally degrade to less than site RGs is 5.1 and 9.5 years after 1983, respectively. Based on actual sampling results for MW172, both 1,3,5-TNB and 2,4,6-TNT levels dropped below the RG during after 1991.

At monitoring well MW131, 1,3,5-TNB showed an upward trend the estimated cleanup time and could not be calculated, while 2,4,6-TNT had an estimated cleanup time of 952 years after 2007 (i.e. 2959) when the highest 2,4,6-TNT concentration was detected in MW131. The time to cleanup presented in the previous Five Year Review was 402 years (or the year 2406 ).

At monitoring wells 173, 1,3,5-TNB has not been detected at a concentration above the RG since 1991 and 2,4,6-TNT had an expected cleanup time of 33 years after 1985 (i.e. 2018) when the highest dissolved 2,4,6-TNT was detected at MW173. The time to cleanup presented in the previous Five Year Review was 87 years or by the year 2091. Monitoring well MW173 is designated as an in-plume well at Site L1. Downgradient early-warning bedrock well WES3 has not had TNT RG exceedances.

The RG for RDX (2.6 µg/L) has historically been exceeded at monitoring well MW172 and has routinely been exceeded at MW173 (**Attachment 4**). There have been no RDX exceedances at early warning bedrock well WES3.

Bioparameters – Analytical results from this site exhibit declining concentrations of explosives, except for 1,3,5-TNB at well MW131 (figures in **Attachment 1**). The increasing trend of the 1,3,5-TNB concentrations may indicate that photolytic degradation of TNT is taking place at MW131. Other bioparameters, such as nitrates, sulfides, TOC, etc., were not collected during the current 5-year review period.

Geology – The unconsolidated deposits at the site generally consist of silt, clay, silty sand, and sandy silts. Occasional clayey sands and gravelly sand seams were reported in three of the boring logs. The dolomite bedrock surface ranges from 6.5 to 21 ft below ground surface. The fracture

trace map indicates two small, east-west trending fractures in the east portion of the site and a small northeast-southwest trending fracture in the center of the site.

Hydrogeology – Groundwater in the overburden flows to the southeast beneath Site L1, and likely discharges to Prairie Creek (figures in **Attachment 1**). The water table depth ranged from approximately 9.40 to 22.19 ft below ground surface at Site L1 in October 2007. Flow in the bedrock is also toward the southeast (figures in **Attachment 1**). Water level elevations versus time plots for Site L1 monitoring wells are included in **Attachment 5**. In general, other than seasonal variation, no drastic changes in groundwater elevation have occurred at site monitoring wells; however, water levels recorded during the April 2008 sampling event were significantly higher than any level previously observed. The 2008 calendar year was one of the wettest years in recorded history.

The vertical gradients measured at well nests MW172/MW173, MW177/MW171, and MW401/MW610 were slightly upward (**Table 15**) during October 2007. The average horizontal gradient at Site L1 during October 2007 was 0.01418 feet/foot (**Table 14**). Horizontal gradients have ranged from 0.0069 feet/foot to 0.01418 feet/foot during LTM activities. Assuming an effective porosity of 0.30, the average linear velocity during October 2007 was 0.0012 feet/day (**Table 16**). Linear velocities have ranged from 0.0006 feet/day to 0.0012 feet/day at Site L1.

Model Results (2,4,6-TNT) - Monitoring well MW131 was selected as the source location for the Site L1 model. The 2,4,6-TNT detection of 9,900 µg/L at MW131 during May 2007 was selected as the source concentration. A decay rate constant of  $8.26 \times 10^{-3} \text{ yr}^{-1}$  was used for 2,4,6-TNT. The decay rate used is an average bulk attenuation rate and was obtained by calculating the Bulk Attenuation Rates between MW131 and MW173 between July 1999 and October 2007. Model results indicate the maximum predicted transport distance of RG exceedances (<1,400 feet) would reach Prairie Creek (1,000 feet), but would not reach the southern edge of the GMZ (1,400 feet). However, based on distance extrapolations using the bulk attenuation rates for highest and lowest calculated half lives, the 2,4,6-TNT plume will not migrate further then 860 or 875 ft from MW131. The transport distance of RG exceedances of 2,4,6-TNT was not modeled during the previous Five Year Review. Model results are summarized in **Table 13** and included in **Attachment 11**.

Summary - There is no evidence to suggest that there have been RG exceedances for explosive compounds outside the GMZ throughout all sampling conducted at Site L1. Although no statistical downward trend has been confirmed for TNB at MW131, there have been no RG exceedances for TNB in downgradient wells (MW172, MW173, and MW174) during LTM monitoring and BIOSCREEN model results indicate a maximum predicted contaminant transport distance of RG exceedances will not extend beyond the GMZ. In addition, there have been no detections for explosives at surface water location SW550.

No statistical downward trend has been confirmed for TNT at MW131, and there have been RG exceedances for TNT in downgradient well MW173 during LTM monitoring; however, there has been a statistical valid decreasing trend for TNT at MW173. In addition, BIOSCREEN model results indicate that the maximum predicted contaminant transport distance of RG exceedances will not extend beyond the GMZ, and as stated above there have been no detections for

explosives at surface water location SW550, and Prairie Creek is the likely discharge point for overburden groundwater.

The technical assessment indicates that the remedy is functioning as intended by the decision documents and the remedy is expected to be protective of human health and the environment. All RA activities for SRUs have been completed at L1. ICs are effective in preventing exposure to contaminated groundwater in USDA Forestry Service property located within the GMZ.

It is anticipated that ICs applicable to MA3 Area property will be implemented and will be effective in preventing exposure to contaminated groundwater when Site L1 is transferred from the U.S. Army to the USDA FS. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5.

#### **7.2.1.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time Of The Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site L1 is located on land that is zoned Agricultural (A-1) by the Will County Land Use Department, and is surrounded by similar land use areas. There is no current land use for the property. It is currently owned and managed by the U.S. Army. The anticipated future land use is for the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

#### **7.2.1.3 Question C: Has any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. Land use controls adequately prevent exposure to the groundwater within the GMZ.

### **7.2.2 Site L2**

Site L2 is located in the west-central portion of the LAP Area, adjacent to Prairie Creek and Kemery Lake (figures in **Attachment 1-2**). The operational area covers approximately 5 acres. Elevated burning pads at the site were used to burn explosives, explosive waste, and spent carbon from the melt-load processes. This activity resulted in the contamination of soil and groundwater. Several separate plumes were identified at this site during the RI. The monitoring wells within this site consist of four overburden wells, six combined wells, and one bedrock well (figures in **Attachment 1**). Site L2 has received closure status for soils as documented in the *Draft Final Closure Report, Sites L2, L5, L23A, M3, M4, and M12* (MWH, March 2008).

### 7.2.2.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

Groundwater from Site L2 was sampled for explosives during October 2007. Natural attenuation indicator parameters have not been sampled since October 2003. Historic data tables are included in **Attachment 4**. The extent of the explosives plume in groundwater and individual explosives compound detections during October 2007 at Site L1 have been included in figures presented in relevant sections of **Attachment 1**.

The RG for RDX (2.6 µg/L) has routinely been exceeded at well MW404 (figures in **Attachment 1**). Concentrations of RDX have declined from the highest detection of 640 µg/L during September 1991 to 250 µg/L during October 2007. RDX detections at MW404 were as low as 15 µg/L during May 2004. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time for TNT at MW404, with a greater than 90% confidence level.

In **Attachment 8**, a best-fit curve is extrapolated through RDX on the graph. In order to get an estimate of the time required for RDX to naturally degrade to less than site RGs, the equation to the best-fit curve in **Attachment 8** is used to project a potential contaminant reduction rate. **Table 12** summarizes the results of this analysis. Given the equation to the best-fit curve for explosives compound RDX at MW404, the estimated time at which this compound will naturally degrade to less than site RGs is 25 years after 1991 (or in the year 2016). The time to cleanup presented in the previous Five Year Review was for the year 2041.

No RG exceedances for RDX have occurred at surface water location SW555 or at well nest MW620/MW621. RDX has only been detected once at SW555 during LTM activities. The detection at 0.56 µg/L of RDX occurred during May 2001. The surface water RG for RDX is 500 µg/L.

Bioparameters – RDX and HMX detections at Site L2 exhibit a declining trend. As such, this site is exhibiting adequate evidence of biodegradation. Other bioparameters, such as nitrates, sulfides, TOC, etc., were not collected during the current Five Year Review period. No other chemical degradation trends were identified during this 5-year review.

Geology – The unconsolidated deposits at the site generally consist of silt, clay, clayey sands, and clayey gravels. The dolomite bedrock surface ranges from 12 to 25 ft below ground surface. No significant bedrock fractures are evident on the fracture trace map.

Hydrogeology – Groundwater flows to the northwest beneath Site L2, and likely discharges to Prairie Creek (figures in **Attachment 1**). Flow in the bedrock is also to the northwest (figures in **Attachment 1**). There appears to be a hydraulic connection between the two aquifers at this site. The water table depth ranged from approximately 7.13 to 18.75 ft below ground surface at Site L2 in October 2007. Water level elevations versus time plots for Site L2 monitoring wells are included in **Attachment 5**. In general, other than seasonal variation, no drastic changes in groundwater elevation have occurred at site monitoring wells; however, water levels recorded during the April 2008 sampling event were significantly higher than any level previously observed. The 2008 calendar year was one of the wettest years in recorded history.

The vertical gradient at well nest MW620/MW621 has been upward since October 2003 (**Table 15**). The average horizontal gradient at Site L2 during October 2007 was 0.00797 feet/foot (**Table 14**). Horizontal gradients have ranged from 0.0147 feet/foot to 0.0208 feet/foot. Assuming an effective porosity of 0.30, the average linear velocity at Site L2 during October 2007 was 0.1206 feet/day (**Table 16**). Flow velocities have ranged from 0.0856 feet/day to 0.3140 feet/day at Site L2.

Model Results - Monitoring well MW404 was selected as the source location for the Site L2 model. The RDX detection of 640 µg/L during September 1991 at MW404 was selected as the source concentration. A first order decay rate constant of  $2.1 \times 10^{-1} \text{ yr}^{-1}$  was used for RDX. The first order decay rate constant is based on LTM analytical data (**Attachment 8**). Model results indicate the maximum predicted transport distance of RG exceedances (<750 feet) will likely discharge into Prairie Creek (150 feet) prior to reaching the GMZ at the opposite bank of the creek. This is generally consistent with the results of the modeling presented in the previous Five Year Review which predicted a transport distance of RG exceedances of (<480 feet). Model results have been summarized in **Table 13** and included in **Attachment 11**.

Summary -Reported concentrations of explosives from LTM activities indicate exceedances of the RG for RDX only at monitoring well MW404. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time for RDX at MW404 with a 90% confidence level. BIOSCREEN modeling results indicate a maximum predicted transport distance of <750 feet. Groundwater likely discharges to Prairie Creek located approximately 150 feet from well MW404. No RG exceedances for RDX have occurred at surface water location SW555, the point of compliance for the GMZ. The vertical gradient at well nest MW620/MW621 was upward during October 2007 (**Table 15**). An exceedance of the RG for RDX occurred at well MW405 in July 1998, however; it has not been detected during any subsequent monitoring events. Because MW404 is screened in both unconsolidated soils and bedrock, it is likely that RG exceedances occur in both the unconsolidated deposits and shallow bedrock.

Metals concentrations in soils near the popping furnaces may also have resulted in groundwater contamination near MW501. However, little historical data exist to confirm or refute metals concentrations in groundwater near the popping furnaces or downgradient of the North Oil Pit. Excavation or disturbance of the soil or vegetative cover could have accelerated infiltration in these areas, thus increasing the potential for mobilizing metals to the groundwater during the recently completed SOU RA activities at Site L2; therefore, metals should be analyzed for one year after SOU RA activities then reevaluated based on analytical results.

The technical assessment indicates that the remedy is functioning as intended by the decision documents and the remedy is expected to be protective of human health and the environment. All RA activities for SRUs have been completed at L2.

It is anticipated that ICs applicable to MA3 Area property will be implemented and will be effective in preventing exposure to contaminated groundwater when Site L2 is transferred from the U.S. Army to the USDA FS. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term



protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5."

#### **7.2.2.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site L2 is located on land that is zoned Agricultural (A-1) by the Will County Land Use Department, and is surrounded by similar land use areas. There is no current land use for the property. It is currently owned and managed by the U.S. Army. The anticipated future land use is for the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

#### **7.2.2.3 Question C: Has any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. Land use controls adequately prevent exposure to the groundwater within the GMZ.

### **7.2.3 Site L3**

Site L3 was used for the open burning of combustible refuse and munitions crates. U- and L-shaped berms were constructed along the east side of Prairie Creek, and a similar sized bermed area was located between the fire training area and demolition pits for burning operations. The location of Site L3 is shown on **Attachment 1-2**. The monitoring wells within this site consist of five overburden wells, two combined wells, and four bedrock wells (figures in **Attachment 1**). Remediation has been completed for Site L3 soils; however, final closure has not been received.

#### **7.2.3.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?**

Chemistry – Groundwater from Site L3 was sampled for explosives during October 2007. Natural attenuation indicator parameters have not been sampled since October 2003. Historic data tables are included in **Attachment 4**. The extent of the explosives plume in groundwater and individual explosives compound detections during October 2007 at Site L3 have been included in figures presented in relevant sections of **Attachment 1**.

The RG for RDX (2.6 µg/L) has routinely been exceeded in well MW412. Concentrations of RDX at MW412 fluctuated during the previous and current Five Year Review periods increasing to a maximum concentration of 300 µg/L during October 2007. This increase could be a temporary surge related to recently completed SOU RA activities. RDX was not present at detectable concentrations in MW412 during the May 2008 semi-annual monitoring event. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses does not indicate a clear trend in concentration versus time for MW412 at Site L3 RDX or HMX. Conflicting trends

are indicated when wet season and dry season data are evaluated separately using the Mann-Kendall Test.

In **Attachment 8**, a best-fit curve is extrapolated through RDX on the graph. In order to get an estimate of the time required for RDX to naturally degrade to less than site RGs, the equation to the best-fit curve in **Attachment 8** is used to project a potential contaminant reduction rate. **Table 12** summarizes the results of this analysis. Given the equation to the best-fit curve for explosives compound RDX at MW412, the estimated time at which this compound will naturally degrade to less than site RGs is 23 years after 2004 (or in the year 2027). The time to cleanup presented in the previous Five Year Review was for the year 2031.

Since monitoring well MW412 is a shallow bedrock well, it is likely that RG exceedances occur in both the unconsolidated deposits and bedrock. Downgradient bedrock well MW633 has had periodic exceedances of the RG for RDX, and the concentration has increased, notably during October 2007 and May 2008, to 300 µg/L and 390 µg/L, respectively. This increase could be a temporary surge related to recently completed SOU RA activities. In addition, detections of RDX at concentrations 4.7 and 5.0 µg/L, respectively, and in excess of the RG for RDX were also reported at well MW410 in July 2005 and April 2007. RDX has been detected at concentrations below the RG for at well MW630 in October 2004 and April 2007.

Surface water locations downstream of MW412 (SW557 and SW777) have had detections for RDX but none greater than the surface water RG of 500 µg/L. All levels of RDX at surface water locations have been below groundwater RG levels (2.6 µg/L) except at SW777 during May 2002.

Bioparameters – Site L3 has shown declining concentrations of the explosive compounds HMX and RDX. The TNT biodegradation product 2a,4,6-DNT was detected above method detection limits in well MW412 in the past two sampling events. Other bioparameters, such as nitrates, sulfides, TOC, etc., were not collected during the current Five Year Review period. Site L3 is exhibiting adequate baseline evidence of natural attenuation.

Geology – The unconsolidated deposits at the site generally consist of silty clay and silt. A thin, 1-foot sand seam, at a depth of 10 to 13 ft, may be continuous across the site. Sand and sandy clays increase in thickness near Prairie Creek. The dolomite bedrock surface ranges from 3 to 28 ft below ground surface. No significant bedrock fractures are evident on the fracture trace map near Site L3.

Hydrogeology – Groundwater flows to the northwest beneath Site L3, and likely discharges to Prairie Creek (figures in **Attachment 1**). Due to the limited number of depth to water measurements taken at Site L3 in October 2007, the depth to water measurement taken at MW134 at Site L2 was combined with the depth to water measurement taken at Site L2 to determine the water table contours (figures in **Attachment 1**). The water table depth ranged from 7.24 to 19.03 ft below ground surface at Site L3 in October 2007 at Site L3. Potentiometric surface contours indicate flow in the bedrock is also toward the northwest (figures in **Attachment 1**). Water level elevations versus time plots for Site L3 monitoring wells are included in **Attachment 5**. In general, other than seasonal variation, no drastic change in

groundwater elevation has occurred at site monitoring wells; however, water levels recorded during the April 2008 sampling event were significantly higher than any level previously observed. The 2008 calendar year was one of the wettest years in recorded history.

The vertical gradient at monitoring well nest MW630/MW631 is slightly upward (**Table 15**). The vertical gradient at well nest MW630/MW631 during October 2007 was 0.2132 feet/foot. The vertical gradient at well nest MW630/MW631 has remained upward ranging from 0.0309 feet/foot to 0.2132 feet/foot (**Table 15**). The average horizontal gradient at Site L3 during October 2007 was 0.01792 feet/foot (**Table 14**). Horizontal gradients have ranged from 0.01792 feet/foot to 0.0243 feet/foot. Assuming an effective porosity of 0.30, the average linear velocity at Site L3 was determined to be 0.2710 feet/day during October 2007 (**Table 16**). The flow velocity at Site L3 was calculated using hydraulic conductivity values from nearby Site L2. No values are available for Site L3. Flow velocities have ranged from 0.2710 feet/day to 0.3673 feet/day during LTM activities.

Model Results - Monitoring well MW412 at Site L3 was selected as the source location for the model. The RDX detection of 390  $\mu\text{g/L}$  during May 2004 at MW412 was selected as the source concentration. A first order decay rate constant of  $11 \times 10^{-1} \text{ yr}^{-1}$  was used for RDX. The first order decay rate constant is based on LTM analytical data (**Attachment 8**). Model results indicate that maximum predicted transport distance of RG exceedances (<900 feet) will remain within the GMZ and should not reach the limits of Prairie Creek (1,400 ft). This is generally consistent with the results of the modeling presented in the previous Five Year Review which predicted a transport distance of RG exceedances of (<750 feet). Model results have been summarized in Table 13 and included in **Attachment 11**.

Summary -Groundwater RDX concentrations have exceeded the RG at wells MW412, MW633, MW410 and MW 411 during LTM. These wells are screened across the overburden and shallow bedrock. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses did not indicate a stable trend in concentration versus time for RDX in MW412 or MW633. However; RA activities associated with the SOU may have temporarily accelerated infiltration in these areas, thus increasing the potential for mobilizing contaminants. BIOSCREEN modeling results indicate that the maximum predicted transport distance of RG exceedances does not extend beyond the GMZ. The vertical gradient at well nest MW630/MW631 was upward during October 2003 (**Table 15**). No exceedances of the surface water RG (500  $\mu\text{g/L}$ ) have been exceeded at surface water location SW777, the point of compliance for the GMZ. Detections of RDX at concentrations 4.7 and 5.0  $\mu\text{g/L}$ , respectively, and in excess of the RG for RDX were also reported at well MW410 in July 2005 and April 2007. A Detection of RDX of 2.9, and in excess of the RG for RDX was also reported at well MW411 in May 2008. The remaining wells, in Site L3, with the exception of MW630, have consistently yielded no reported concentrations of explosive compounds.

Metals concentrations in soils near the burning cages and demolition areas, as well as the amount of metals debris buried at the site, suggest that further evaluation of metals concentrations in groundwater should be considered. Little historic data exist to confirm or refute groundwater metals concentrations at Site L3. Excavation or disturbance of the soil or vegetative cover associated with recent SOU RA activities at Site L3 may temporarily accelerate infiltration in the

affected areas, and increasing the potential for mobilizing metals to the groundwater. Metals should be analyzed at wells MW410, MW411, MW630, and MW631 for one year after SOU RA activities then reevaluated based on analytical results.

The technical assessment indicates that the remedy is functioning as intended by the decision documents and the remedy is expected to be protective of human health and the environment. All RA activities for SRUs have been completed at L3.

It is anticipated that ICs applicable to MA3 Area property will be implemented and will be effective in preventing exposure to contaminated groundwater when Site L3 is transferred from the U.S. Army to the USDA FS. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5.

#### **7.2.3.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site L3 is located on land that is zoned Agricultural (A-1) by the Will County Land Use Department, and is surrounded by similar land use areas. There is no current land use for the property. It is currently owned and managed by the U.S. Army. The anticipated future land use is for the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

#### **7.2.3.3 Question C: Has any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. Land use controls adequately prevent exposure to the groundwater within the GMZ.

### **7.2.4 Site L14**

Site L14 is a 33-acre site located in the southwestern corner of the LAP Area, near Sites L15 through L19 (**Attachment 1-2**). Site L14 was used for a variety of activities associated with munitions production and storage. Monitoring wells within this site consist of eight overburden wells, one combined well, and two bedrock wells (figures in **Attachment 1**). Site L14 has received closure status for soils as documented in the *Final Closure Report, Sites L1, L7, L8, L9, L10, L14 and M2* (MWH, October 2006).

#### **7.2.4.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?**

Chemistry – Groundwater from Site L1 was sampled for explosives during October 2007. Natural attenuation indicator parameters have not been sampled since October 2003. Historic

data tables are included in Attachment 4. The extent of the explosives plume in groundwater and individual explosives compound detections during October 2007 at Site L14 have been included in figures presented in relevant sections of **Attachment 1**.

The RG for RDX (2.6 µg/L) has routinely been exceeded in overburden wells MW508, MW511, and MW512. RDX was not detected at MW508 during any of the most recent four semi-annual monitoring events and was not detected at MW511 during May 2008. RDX was detected at MW512 at concentrations of 200 µg/L and 10 µg/L, respectively, during the October 2007 and May 2008 monitoring events. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time for RDX at MW508. The analyses did not indicate a stable trend in concentration versus time for RDX at MW511 or 512.

In **Attachment 8**, best-fit curves are extrapolated through the shown contaminant concentrations presented on each graph. In order to get an estimate of the time required for the selected explosives compound to naturally degrade to less than site RGs, the equation to the best-fit curve in **Attachment 8** are used to project potential contaminant reduction rates; **Table 12** summarizes the results of this analysis.

Given the equation to the best-fit curve for explosives compound RDX at MW508, the estimated time at which this compound will naturally degrade to less than site RGs is 26 years after 1993 (or in the year 2019). The cleanup date calculated in the previous Five Year Review was the year 2013.

Given the equation to the best-fit curve for explosives compound RDX at MW511, the estimated time at which this compound will naturally degrade to less than site RGs is 22 years after 1995 (or in the year 2017). The cleanup date calculated in the previous Five Year Review was the year 2028.

Given the equation to the best-fit curve for explosives compound RDX at MW512, the estimated time at which this compound will naturally degrade to less than site RGs is 22 years after 2005 (or in the year 2027). The cleanup date calculated in the previous Five Year Review was the year 2024.

RDX has periodically been detected at downgradient overburden well H7, but no RG exceedances have occurred during LTM activities. No detections of RDX have occurred at downgradient overburden wells MW601 and MW603, or in downgradient bedrock wells MW602 and MW604 during LTM activities.

The RG for TNT (9.5 µg/L) was exceeded in wells MW508 (12.6 µg/L) and MW512 (12.8 µg/L) during baseline sampling in July 1998 (Attachment 4). TNT was previously detected at Site L14 in the RI sampling round (Attachment 4). No detections of TNT at monitoring wells MW508 and MW512 have occurred during LTM sampling at Site L14.

Bioparameters – RDX detections at Site L14 exhibit a declining trend. TNT anaerobic degradation daughter products 2a,4,6-DNT and 4a,2,6-DNT have been detected at overburden

well MW512 since November 1999 and most recently in October 2005. Site L14 has exhibited declining concentrations of HMX and the past five monitoring events have shown HMX concentrations below detection limits. Other bioparameters, such as nitrates, sulfides, TOC, etc., were not collected during the current Five Year Review period. This site exhibits adequate evidence of natural attenuation, but the low organic carbon concentration may be a limiting factor to biodegradation.

**Geology** – The unconsolidated deposits at Site L14 generally consist of silty clay, sandy silts, and silt. A sand seam was reported at well MW511, and 1-foot gravel seams overlying the bedrock were reported at well MW511 and MW512. The dolomite bedrock surface ranges from 12 to 22 ft below ground surface. An extensive northwest-southeast trending bedrock fracture is present through the center of the site.

**Hydrogeology** – Groundwater flows to the southwest beneath Site L14 (figures in **Attachment 1**). The water table depth ranged from 11.25 to 13.86 ft below ground surface at Site L14 in October 2007. Flow in the bedrock aquifer is toward the west (figures in **Attachment 1**). Water level elevations versus time plots for Site L14 monitoring wells are included in **Attachment 5**. In general, other than seasonal variation, no drastic changes in groundwater elevation have occurred at site monitoring wells; however, water levels recorded during the April 2008 sampling event were significantly higher than any level previously observed. The 2008 calendar year was one of the wettest years in recorded history.

Vertical gradients have remained downward in the central portion of the site and upward in the western portion (downgradient) of Site L14 (**Table 15**). Vertical gradients observed at the site during LTM activities have been included in **Table 15**. The average horizontal gradient at Site L14 was 0.00478 feet/foot (**Table 14**) during October 2007. Horizontal gradients have ranged from 0.00478 feet/foot to 0.0084 feet/foot. The average linear velocity during October 2007 at Site L14 was 0.0723 feet/day (**Table 16**). The flow velocity at Site L14 was calculated using hydraulic conductivity values from nearby Site L2. No values are available for Site L14. Flow velocities during LTM activities at Site L14 have ranged from 0.0723 feet/day to 0.1270 feet/day.

**Model Results** - Monitoring well MW508 was selected as the source location for the Site L14 model. The RDX concentration of 840 µg/L from August 1993 was selected as the source concentration. A first order decay rate constant of  $7.3 \times 10^{-1} \text{ yr}^{-1}$  was used for RDX. The first order decay rate constant is based on LTM analytical data (**Attachment 8**). Model results indicate that maximum predicted transport distance of RG exceedances (<300 feet) will remain within the GMZ (1,000 ft). This is less than, but generally consistent with, the results of the modeling results presented in the previous Five Year Review which predicted a transport distance of RG exceedances of (<600 feet). Model results have been summarized in **Table 13** and included in **Attachment 11**.

**Summary** -Groundwater RDX concentrations have exceeded the RG (2.6 µg/L) in the three in-plume wells (MW508, MW511, and MW512) during LTM. All in-plume wells are screened in the overburden groundwater. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time for RDX at MW508.

No statistically supported trend for RDX has been documented for MW 511 or MW512. BIOSCREEN model results indicate a maximum predicted transport distance will not approach the GMZ boundary. Historically, TNT exceeded the RG (9.5 µg/L) at two of the three in-plume wells (MW508 and MW512). Subsequently, TNT has not been detected during LTM activities although biodegradation products have been detected. There are no bedrock wells near the plume at Site L14. There have been no RG exceedances for explosive compounds in downgradient bedrock wells MW602 and MW604.

The technical assessment indicates that the remedy is functioning as intended by the decision documents and the remedy is expected to be protective of human health and the environment. All RA activities for SRUs have been completed at L14.

It is anticipated that ICs applicable to MA3 Area property will be implemented and will be effective in preventing exposure to contaminated groundwater when Site L14 is transferred from the U.S. Army to the USDA FS. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5.

#### **7.2.4.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site L14 is located on land that is zoned Agricultural (A-1) by the Will County Land Use Department, and is surrounded by similar land use areas to the north and a future industrial land use area to the south. There is no current land use for the property. It is currently owned and managed by the U.S. Army. The anticipated future land use is for the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

#### **7.2.4.3 Question C: Has any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. A summary of the results of the review of the groundwater RGs presented in the ROD and land use conditions applicable to the site are summarized in **Attachment 14**. The groundwater RGs presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of the groundwater RGs outside of the GMZ. Controls adequately prevent exposure to the groundwater within the GMZ.

### **7.3 GRU2 - EXPLOSIVES AND OTHER CONTAMINANTS IN GROUNDWATER**

GRU2 is entirely in the MFG Area and consists of separate plumes emanating from sources at Sites M1, M5, M6, M7, M8, and M13 (**Attachment 1-2**). The following discussions are a

summary of the LTM groundwater quality results along with a summary of site characteristics. The purpose of these summaries is to evaluate whether the monitored natural attenuation remedy is performing adequately at each site.

### 7.3.1 Site M1

Site M1 – The Southern Ash Pile, is a 68-acre tract in the southern portion of the MFG Area formerly used for the disposal of ash from red water incineration (**Attachment 1-2**). The monitoring wells within this site consist of nine overburden wells, four combined wells, and five bedrock wells. The monitoring well locations are shown in figures included in relevant sections of **Attachment 1**. Remediation has been completed for Site M1 soils; however, final closure has not been received.

#### 7.3.1.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

Chemistry – Groundwater from Site M1 was sampled for sulfate during October 2007. No other natural attenuation indicator parameters have been sampled since October 2003. Historic data tables are included in **Attachment 4**. The extent of the sulfate plume in groundwater during October 2007 at Site M1 has been included in figures included in relevant sections of **Attachment 1**.

Although previously detected at low levels, there were no explosives, antimony, or cadmium detections in the baseline results. Therefore, sulfate has been the only analyte sampled for during LTM activities. Sulfate concentrations have routinely exceeded the RG of 400 milligrams per liter (mg/L) in wells MW231 and MW107. In addition, periodic to routine sulfate exceedances have occurred at monitoring wells MW351, MW640, MW641, and MW642. The continuing exceedance of the RG for sulfate at wells MW641 and MW642 prompted the USACE to submit an ESD (USACE, 13-February-03) which requested a modification to the remedy for groundwater contamination at Site M1. The proposed remedy was to expand the west and north boundaries of the GMZ.

The preponderance of Mann-Kendall and Mann Whitney U statistical analyses suggests a decreasing trend in concentration of sulfate versus time for MW107 and an increasing trend at MW231. These statistical analyses did not indicate a stable trend in concentration versus time for sulfate at MW351, MW640, MW641 or MW642. The overall increasing trend in sulfate concentrations at Site M1 observed during the previous Five Year Review period was likely due to limited source control measures performed at the ash pile. Expanding the GMZ at Site M1 eliminated, to date, exceedances of site RGs outside the site boundary. Continued monitoring of early warning wells along with sulfate trend analysis will help determine if the remedy meets the ROD objective for the M1 Site or if further changes will be necessary.

The surface water RG for sulfate (500 mg/L) has historically been exceeded at surface water locations SW702, SW703, and SW708; however, no exceedances were reported during the current Five Year Review period. Sample locations SW702, SW703, and SW708 are all within the new GMZ boundary. Surface water within the GMZ must meet surface water RGs at the



downstream boundary of the GMZ, the point of RG compliance. No RG exceedances of surface water criteria have occurred at locations within Prairie Creek (SW705, SW706, and SW707).

Bioparameters – Sulfate continues to be detected at concentrations similar to historical concentrations. Sulfate may have been a key electron acceptor in the degradation of explosives at this site and is clearly a site contaminant from the red water ash.

Geology – The unconsolidated deposits at the site generally consist of silt, clay, and silty sand. No sand or gravel seams were reported in any of the six on-site boring logs. The dolomite bedrock surface ranges from 16 to 27 ft below ground surface. Fracture trace maps indicate two major fractures that intersect in the north-central portion of Site M1 and trend northwest-southeast and northeast-southwest.

Hydrogeology – Groundwater flow beneath Site M1 is generally to the west-northwest toward Prairie Creek and an adjacent wetland area (figures in **Attachment 1**). These surface water features are the likely discharge points of local groundwater flow. The water table depth ranged from approximately 2.77 to 11.20 ft below ground surface at Site M1 in October 2007. Flow in the bedrock aquifer is toward the northwest (figures in **Attachment 1**). Water level elevations versus time plots for Site M1 monitoring wells are included in **Attachment 5**. Water table wells closer to Prairie Creek indicate more change than those near the interior of the site. This is to be expected with the groundwater/surface water interface along Prairie Creek. In general, other than seasonal variation, no drastic changes in groundwater elevation have occurred at site monitoring wells; however, water levels recorded during the April 2008 sampling event were significantly higher than any level previously observed. The 2008 calendar year was one of the wettest years in recorded history.

The vertical gradient at well nest MW641/MW642 has remained slightly downward and the vertical gradient at well nest MW351/MW640 has remained slightly upward (**Table 15**). The average horizontal gradient at Site M1 during October 2007 was 0.00332 feet/foot (**Table 14**). Horizontal gradients have ranged from 0.00332 feet/foot to 0.0175 feet/foot at Site M1 during LTM at the site. Assuming an effective porosity of 0.30, the average linear velocity at Site M1 during October 2007 was 0.0021 feet/day (**Table 16**). Flow velocities have ranged from 0.0021 feet/day to 0.0109 feet/day.

Based on the results of the groundwater quality data it appears that sulfate is being transported in the bedrock as well as the unconsolidated deposits.

Model Results - Site M1 was not modeled because there are likely many attenuation mechanisms occurring within the bedrock aquifer that affect the transport of sulfate. These mechanisms could not be accounted for using BIOSCREEN and other available models. Evidence of these attenuation mechanisms is provided by the significant differences in sulfate concentrations between the monitoring wells immediately downgradient of the landfill and the distal downgradient wells.

Summary -Sulfate concentrations have historically exceeded the RG (400 mg/L) at eight of 17 well locations sampled at Site M1. Although historically detected at relatively low

concentrations, there were no explosives, antimony, or cadmium detections during pre-design groundwater monitoring conducted during 1998. Subsequently, metals and explosives analyses were dropped when the LTM Program was developed for Site M1. Reassignment of monitoring wells took place when the ESD (USACE, 13-February-03), was submitted which modified the remedy by expanding the GMZ at Site M1.

The technical assessment indicates that the remedy is functioning as intended by the decision documents and the remedy is expected to be protective of human health and the environment. All RA activities for SRU 6 soil have been completed at M1.

It is anticipated that ICs applicable to MA3 Area property will be implemented and will be effective in preventing exposure to contaminated groundwater when Site M1 is transferred from the U.S. Army to the USDA FS. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5.

#### **7.3.1.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site M1 is located on land that is zoned Agricultural (A-1) by the Will County Land Use Department, and is surrounded by similar land use areas. There is no current land use for the property. It is currently owned and managed by the U.S. Army. The anticipated future land use is for the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

#### **7.3.1.3 Question C: Has any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. It is anticipated that ICs applicable to MA3 Area property will be effective in preventing exposure to contaminated groundwater when Site M1 is transferred from the U.S. Army to the USDA FS. and use controls adequately prevent exposure to the groundwater within the GMZ.

### **7.3.2 Site M5**

Site M5, Tetryl Production Area, is a 244-acre tract in the central portion of the MFG Area (figures in **Attachment 1**). This site was formerly used for the production of tetryl. There were multiple production lines, each with a series of buildings for the various stages of tetryl manufacturing. The monitoring wells within this site consist of one overburden wells, four combined wells, and one shallow bedrock well. In addition, one surface water sample location is sampled at the confluence of Tetryl Ditch and Grant Creek (SWTET). The monitoring locations are presented in figures included in relevant sections of **Attachment 1**. Site M5 has received

closure status for soils as documented in the *Final Site M5 Closure Report* (MWH, December 2000).

#### 7.3.2.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

Chemistry – Groundwater from Site M5 was sampled for explosives during October 2007. Natural attenuation indicator parameters have not been sampled since October 2003. Historic data tables are included in **Attachment 4**. No contaminants were detected in groundwater during the current Five Year Review period. The historical extent of the explosives plume in groundwater and individual explosives compounds at Site M5 have been included in figures presented in relevant sections of **Attachment 1**.

Although tetryl was previously detected at low levels in well MW207 (less than the RG), there were no explosives detected in the baseline sampling results (**Attachment 4**). There have been sporadic detections of explosives during LTM at Site M5. 2,4-DNT was detected at 0.78 µg/L at MW207R during October 2002. 2,4-DNT had not been detected at MW207 since August 1991. 2,6-DNT was detected at 1.8 µg/L during October 2002 and had not been detected at MW207 since July 1988. Both detections for DNT represent RG exceedances (RG = 0.42 µg/L for both DNTs). RDX was detected above the RG (2.6 µg/L) during October 2003 at a concentration of 4.9 µg/L. RDX had not previously been detected at Site M5. Since detections have been so sporadic, the Mann-Kendall statistical test analysis was not applicable.

Given the equation to the best-fit curve for explosives compound 2,4,6-TNT at MW207/MW207R, the compound should have naturally degraded to less than site RGs by 2001 (**Table 12**) given an initial concentration of 16.7 µg/L during 1988. 2,4,6-TNT has not been detected above method detection limits at monitoring well MW207/MW207R since 1988. The estimated cleanup time for 2,6-DNT at monitoring well MW207/MW207R is 24 years since 1988 or the year 2022; however, 2,6-DNT has not been detected above method detections limits at monitoring well MW207/MW207R since 2001.

With the exception of 0.82 µg/L tetryl detected in October 2000, there have been no other detections of explosives at surface water sample location SWTET at Site M5 between baseline sampling conducted during July 1998 and LTM activities, and SWTET has not been sampled during the current Five Year Review period. Trace concentrations of 2-Amino-4,6-Dinitrotoluene have been detected in surface water samples collected during the current Five Year Review period. It was detected in October 2005 and April 2008 at concentrations of 0.9 and 0.82 µg/L, respectively. There is not an RG for 2-Amino-4,6-Dinitrotoluene in surface water.

Bioparameters – TNB was detected at a concentration of 0.73 µg/L at MW207R during October 2003. TNB is a photolytic breakdown product of TNT. No TNT has been detected at the site since July 1988. Anaerobic biodegradation product 4a,2,6-DNT was detected at MW207R during May 2002. TNT had previously been detected at MW207. The presence of breakdown products indicates that conditions may be favorable for biodegradation at Site M5. Other bioparameters, such as nitrates, sulfides, TOC, etc., were not collected during the current Five Year Review period.

**Geology** – The unconsolidated deposits at Site M5 consists of surficial clays and silts with a more permeable deposit at 5 to 7 ft that ranges from sand to clayey sand to gravelly sand. This permeable layer is approximately 3 to 5 ft thick and is located over the dolomite bedrock. Depth to bedrock ranges from 10 to 17 ft. Fracture trace maps indicate two major fractures that intersect in the north-central portion of Site M5 and trend northeast-southwest.

**Hydrogeology** - Groundwater flow beneath Site M5 is to the west (figures in **Attachment 1**). The water table depth ranged from approximately 10.11 to 39.98 ft below ground surface at Site M5 in October 2007. Potentiometric surface contours indicate that flow in the bedrock aquifer is also toward the west (figures in **Attachment 1**). Water level elevations versus time plots for Site M5 monitoring wells are included in **Attachment 5**. In general, other than seasonal variation, no drastic changes in groundwater elevation have occurred at site monitoring wells; however, water levels recorded during the April 2008 sampling event were significantly higher than any level previously observed. The 2008 calendar year was one of the wettest years in recorded history.

Vertical gradients are unavailable due to the absence of well nests at the site. The lack of water table wells is due to very little saturated unconsolidated deposits present at the site. Unconsolidated deposits are rather thin at Site M5. Depth to bedrock ranges from 10 to 17 ft below ground surface at Site.

Because Site M5 is located just north of Grant Creek in a low topographic setting, vertical gradients in this area are likely upward. The average horizontal gradient and linear velocity were not calculated due to the limited number of water table wells at the site.

Surface water at Site M5 historically ran to Tetryl Ditch, which in turn discharged to Grant Creek. Surface water location SWTET has been sampled at the intersection of Tetryl Ditch and Grant Creek (**Attachment 1**). No detections of explosives have been observed at SWTET since sampling started during July 1988. During construction of the Intermodal Center, Tetryl Ditch was filled in during access road construction along the south boundary of the Intermodal Center. Surface water from Site M5 now flows to a large sedimentation basin north of the access road, in the west portion of Site M5. There has been no indication of an increase in water levels in monitoring wells located adjacent to the sedimentation basin (MW354R, MW355R, MW356R and MW114R. (**Attachment 5**).

**Model Results** – No explosives compounds with RGs were detected in monitoring wells at Site M5 during the second Five Year Review period. No modeling was conducted in support of the monitored natural attenuation remedy at Site M5 during the current or previous Five Year Review periods.

**Summary** - Historically, tetryl and other explosives compounds had been detected at low levels in monitoring well MW207. Detections diminished until SOU RA activities took place during 1999. LTM monitoring results prior to the current Five Year Review period indicated RG exceedances for RDX, 2,4-DNT, and 2,6-DNT at replacement well MW207R at Site M5. Sporadic detections of explosives were likely due to disturbance of soil during redevelopment

construction activities. No explosives compounds with RGs were detected in monitoring wells at Site M5 during the second Five Year Review period.

The technical assessment indicates that the remedy is functioning as intended by the decision documents. Soil OU RA activities, conducted during 1999, have removed the soil source to groundwater at Site M5. **Tables 9 and 11** list the ICs implemented at Site M5. ICs are effective in preventing exposure to contaminated groundwater. The groundwater remedy is protective of human health and the environment. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5.

#### **7.3.2.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site M5 is located on land that has been incorporated by the Village of Elwood is zoned for intermodal and related uses (I-4A). Site M5 is currently developed and utilized for intermodal land use. No other land use is anticipated. Site M5 is surrounded to the north, east, and west by similar land use areas; and to the south by the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

#### **7.3.2.3 Question C: Has any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. Land use controls adequately prevent exposure to the groundwater within the GMZ.

### **7.3.3 Site M6**

Site M6, the TNT Ditch Complex, includes approximately 271 acres in the central part of the MFG Area (**Attachment 1-2**). At facility shut-down, there were 10 production lines for manufacturing TNT. The groundwater monitoring network within this site consists of 43 wells: 18 overburden wells, 2 combined overburden/bedrock wells, and 23 bedrock wells. Surface water is also monitored at a point within the TNT ditch (SWTNT) near the point of discharge to Grant Creek. Site M6 has received closure status for soils as documented in the *Final Site M6 Closure Report* (MWH, June 2006).

#### **7.3.3.1 Question A: Is The Remedy Functioning as Intended by the Decision Documents?**

Chemistry – Groundwater from Site M6 was sampled for sulfate, VOCs and explosives during October 2007. Sulfate is the only natural attenuation indicator parameter that has been sampled

since October 2003. Historic data tables are included in Attachment 4. The extent of the sulfate VOCs and explosives plumes in groundwater during October 2007 at Site M6 has been included in figures presented in **Attachment 1**. Because of the number of wells present at Site M6, analysis has been limited to a select number of wells exhibiting the maximum observed concentrations for explosives and VOCs.

The RG for TNT (9.5 µg/L) has routinely been exceeded in monitoring wells MW210R, MW212R, MW307, and MW652. The concentration of TNT at well MW210R has declined from the maximum observed concentration of 820 µg/L during July 1988 to 1 µg/L during May 2008. Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time for TNT at the 80% confidence level (**Attachment 10**).

The TNT levels in well MW212R have dropped from the maximum observed concentration of 2,600 µg/L during July 1988 to 440 µg/L during October 2007. Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time for TNT at the 80% confidence level at MW212R (**Attachment 10**). The results increased earlier during the current review period, apparently as a result of earlier excavation activities at Site M6, but are now decreasing. Monitoring well MW212R is screened in the overburden and would experience more infiltration from open excavations.

The TNT levels in well MW307 have declined from the maximum observed concentration of 21.6 µg/L during July 1988 to 13 µg/L during October 2007 and 8.1 µg/L during May 2008. Mann-Kendall and Mann Whitney U statistical analyses did not indicate a stable trend in concentration versus time for TNT at MW307.

The TNT levels in well MW652 have declined from the maximum observed concentration of 3,400 µg/L during June 1999 to 1,100 µg/L during October 2007 and 710 during May 2007. The Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time at the 90% confidence level for TNT at monitor well MW652.

Results from the October 2007 and May 2008 sampling events indicate RG exceedances for TNT occurred at Site M6 overburden wells MW212R, MW307, and MW652. Concentrations at MW650 have dropped below the RGs during the current Five Year Review period and have not exceeded the RG since October 2006. No RG exceedances for TNT were observed in samples collected from bedrock wells at Site M6 during October 2003.

The RGs for 2,4-DNT and 2,6-DNT (0.42 µg/L for both) have routinely been exceeded in wells MW210/MW210R, MW212/MW212R, and MW652. RG exceedances of one or both DNTs occurred at wells MW210R, MW212R, MW307, MW650, MW651, MW652, during October 2007 and May 2008. RG exceedances for DNTs occur in both the unconsolidated deposits and bedrock aquifers.

The concentration of 2,4-DNT has declined from the maximum observed concentration of 3,200 µg/L during July 1988 to 0.44 µg/L, and the concentration of 2,6-DNT at MW210/MW210R has declined from the highest reported concentration of 1,400 µg/L during July 1998 to 0.91 µg/L during October 2007, at MW210/MW210R. Mann-Kendall and Mann Whitney U statistical

analyses suggest a decreasing trend in concentration versus time for both DNTs at the 80% confidence level MW210/MW210R.

Given the equation to the best-fit curve for 2,4-DNT, 2,6-DNT and 2,4,6-TNT at MW210R, the estimated year at which these compounds should have naturally degraded to less than site RGs was 2070, 2025, and 2000, respectively. The 2,4,6-TNT concentrations at MW210R have not been above the RG level since 2001.

The concentration of 2,4-DNT at MW212R has declined a concentration of 3,800 µg/L during October 2007, and 5,700 µg/L in May 2008. Concentrations of up to 17,000 µg/L were detected in the aftermath of excavation performed at the site during the SOU RA activities. The concentration of 2,6-DNT has decreased from the maximum observed concentration of 2,800 µg/L during October 2000 to 1,300 µg/L during October 2007, and 1,000 µg/L in May 2008.. Mann-Kendall and Mann Whitney U statistical analyses suggest a decreasing trend in concentration versus time for 2,4 DNT, and no trend for 2,6 DNT at the 80% confidence level at MW212/MW212R.

The concentration of 2,4-DNT at well MW652 has to 4,600 µg/L during October 2007 and 3,800 µg/L in May 2008. 2,6-DNT decreased to 1,700 µg/L during October 2007, and 1,300 µg/L in May 2008. Mann-Kendall and Mann Whitney U statistical analyses suggest a decreasing trend in concentration versus time for both DNTs at MW652.

The RG for 2-NT (5100 µg/L) has routinely been exceeded in wells MW212/MW212R and MW652. The concentration of 2-NT has decreased to 19,000 µg/L during October 2007, and has increased to 21,000 µg/L in May 2008 at MW212/MW212R. The concentration of 2-NT has decreased to 20,000 µg/L during October 2007, and 17,000 µg/L in May 2008 at MW652. Reported concentrations of 2-NT have remained above the RG of 5,100 µg/L throughout LTM activities (**Attachment 4**). Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time at the 90% confidence level for 2-NT at MW652.

There have been no exceedances of surface water RGs (or groundwater RGs) for explosive compounds at surface water location SWTNT since inception of sampling during July 1998. The only explosive compounds detected at SWTNT have been low levels of 2a,4,6-DNT and 4a,2,6-DNT during October 2001 and May 2002. There are no RGs for 2a,4,6-DNT and 4a,2,6-DNT.

VOCs have routinely been sampled for at monitoring wells MW118, MW119, MW166R, MW311, MW312, MW320R, MW650, MW651, MW662, MW663, MW664, and MW665 during LTM at Site M6. There have been no RG exceedances for VOCs at Site M6 during LTM activities (**Attachment 4**). Acetone and methylene chloride detections have been qualified as having association with blank contamination.

Total 1,2-Dichloroethene (1,2-DCE) has been detected at well MW320R at levels ranging from 5.0 µg/L to 7.8 µg/L during LTM activities.

Sulfate was detected at 460 mg/L at monitoring well MW166R, exceeding the RG of 400 mg/L, during May 2008. Sulfate was reported at 410 mg/L at MW652 during October 2005 but has

remained below the RG during subsequent sampling events. The most recent data for may 2008 reported a sulfate concentration of 110 mg/L.

Bioparameters –Except for well MW212R, Site M6 has shown declining concentrations of explosive compounds. TNT anaerobic biodegradation byproducts 2a,4,6-DNT and 4a,2,6-DNT have been detected in monitoring wells MW210R, MW212R, MW307, MW308, MW309, MW314, MW315, MW650, MW652, and MW654 during LTM activities at Site M6 (**Attachment 4**). Other bioparameters, such as nitrates, sulfides, TOC, etc., were not collected during the past 5-years.

Geology – The unconsolidated deposits at Site M6 consist of surficial clays and silts with scattered deposits of permeable sand or gravel over dolomite bedrock. These permeable deposits are located predominately on the east side of the site and range from approximately 3 to 15 ft in thickness. Depth to bedrock ranges from 3 to 35 ft. The fracture trace map indicates a northeast-southwest pair of parallel fractures terminating on the west side of the site and another northwest-southeast trending pair terminating on the east side of the site.

Hydrogeology -Groundwater flow below Site M6 is generally to the west/northwest (figures in **Attachment 1**). The water table depth ranged from 5.25 to 19.61 ft below ground surface at Site M6 in October 2007. Potentiometric surface contours indicate flow in the bedrock aquifer is generally toward the west at Site M6 (figures in **Attachment 1**). Water level elevations versus time plots for Site M6 monitoring wells are included in **Attachment 5**. Other than seasonal variation and effects from soil excavation work conducted between 1999 and 2005 at Site M6, no drastic changes in groundwater elevations have occurred at site monitoring wells.

Vertical gradients are generally downward across the site (**Table 15**). Well nest MW312/MW311 has exhibited changes in vertical gradient direction from slightly upward to downward during recent LTM activities at Site M6. The cause of these fluctuations is possibly due to hydraulic head changes caused by soil excavation activities at the site. The vertical gradient is not readily apparent at well nest MW166R/MW320R (**Table 15**). The average horizontal gradient during October 2007 was 0.02655 feet/foot at M6N and 0.00763 feet/foot at M6S (**Table 14**). The average horizontal gradients at Site M6 during LTM activities are summarized in **Table 14**. Assuming an effective porosity of 0.30, the average linear velocity during October 2007 was 0.2158 feet/day at M6N and 0.0620 feet/day at M6S (**Table 16**). The average flow velocities at Site M6 during LTM activities are summarized in **Table 16**.

Vertical gradients are generally downward across the site (**Table 15**). Well nests MW315/MW314 and MW318/MW319 have exhibited changes in vertical gradient direction from downward to slightly upward during recent LTM activities at Site M6. The cause of these fluctuations is possibly due to hydraulic head changes caused by soil excavation activities at the site. The vertical gradient is not readily apparent at well nests MW166R/MW320R and MW312/MW311 (**Table 15**). The average horizontal gradient during October 2003 was 0.0222 feet/foot (**Table 14**). The average horizontal gradient at Site M6 has ranged from 0.0130 feet/foot to 0.0270 feet/foot between October 1999 and October 2003. Assuming an effective porosity of 0.30, the average linear velocity during October 2003 was 0.1804 feet/day (**Table**



16). Flow velocities have ranged from 0.1056 feet/day to 0.2194 feet/day between 1999 and 2003.

Model Results (2,4-DNT at MW212)- Monitoring well MW212/212R was selected as the source location for the Site M6 model. The 2,4-DNT detection of 17,000 µg/L at MW212R during October 2004 was selected as the source concentration. A decay rate constant of  $4.65 \times 10^{-1} \text{ yr}^{-1}$  was used for 2,4-DNT. The decay rate used is an average bulk attenuation rate and was obtained by calculating the bulk attenuation rates between MW212 and MW123, the closest downgradient wells, between June 1999 and October 2007. Because no detectable levels of 2,4-DNT has been observed at MW123, an arbitrary concentration of 0.01 µg/L at MW123 was used to calculate the bulk attenuation rates. Model results indicate the maximum predicted transport distance of RG exceedances (<800 feet) will not reach MW123 (1,220 feet) and should therefore not reach the edge of the GMZ. Based on distance extrapolations using the bulk attenuation rates for highest and lowest calculated half lives, the 2,4-DNT plumes will not migrate further then 800 to 900 ft from MW212R (Attachment 11). This is nearly one order of magnitude less than the results of the modeling results presented in the previous Five Year Review which predicted a transport distance of RG exceedances of (<9,000 feet). Model results are summarized in **Table 13** and included in **Attachment 11**. 2-Nitrotoluene was not modeled because the nearest downgradient well, MW123, has no detectable levels of 2-nitrotoluene, has a higher RG, and therefore would have produced similar results as 2,4,-DNT.

Model Results (2,4-DNT at MW315)- Monitoring well MW315 at Site M6 was selected as the source location for this model. The 2,4-DNT detection of 8.9 µg/L during November 1999 at MW315 was selected as the source concentration. A first order decay rate constant of  $3.7 \times 10^{-1} \text{ yr}^{-1}$  was used for 2,4-DNT. The first order decay rate constant is based on LTM analytical data (**Attachment 8**). Model results indicate that maximum predicted transport distance of RG exceedances (<25 feet) will remain within the GMZ (3,500 feet). This is generally consistent with the results of the modeling presented in the previous Five Year Review which predicted a transport distance of RG exceedances of (<15 feet). Model results have been summarized in **Table 13** and included in **Attachment 11**.

VOCs were detected at overburden wells MW166R and MW650, combined well MW311, and bedrock wells MW320R and MW665 during the previous Five Year Review period, but no RG exceedances were reported (**Attachment 4**). Several detections of 1,2-DCE, at less than 10 µg/L were observed during the current review period at well MW320R. All of the detections except 1,2-DCE at well MW320R were one-time detections at very low concentrations. Detections of 1,2-DCE at MW320R have consistently been an order of magnitude below the RG (70 µg/L).

Sulfate is included in the parameter list required for the Five-Year Review of the GOU natural attenuation remedy. Sulfate exceeded the RG of 400 mg/L at wells MW166R and MW652 at Site M6, during the current Five Year Review period, with maximum concentrations of 590, and 410 mg/L, respectively.

Summary -RG exceedances for explosive compounds have been reported at six overburden, three combined overburden and bedrock, and four bedrock wells at Site M6 during LTM conducted since June 1999. Explosives compounds detected above RGs during LTM in

overburden and combined wells include RDX, TNT, TNB, 2-NT, 1,3-DNB, 2,4-DNT, and 2,6-DNT. Only 2,4-DNT and 2,6-DNT have exceeded RGs in bedrock wells at Site M6 during LTM conducted since June 1999. There were no detections for explosives at surface water location SWTNT located near the confluence of TNT Ditch and Grant Creek.

The technical assessment indicates that the remedy is functioning as intended by the decision documents and the remedy is expected to be protective of human health and the environment. All RA activities for SRUs have been completed at M6 and the ICs required by the initial deed documents for previous non-federal transfers in the MFG Area should be effective in preventing exposure to contaminated groundwater when the property is transferred from the U.S. Army. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5."

#### **7.3.3.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used At The Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site M6 is located on land that has been incorporated by the Village of Elwood is zoned for intermodal and related uses (I-4A). There is no current land use for the property. Site M6 is currently owned and managed by the U.S. Army. Site M6 is surrounded to the east by similar land use zoning areas; and to the west by the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

#### **7.3.3.3 Question C: Has Any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?**

During the previous Five Year Review, concerns were raised related to a proposed coal-fired electric generating facility in the MFG area. Preliminary design studies indicated that the construction of an associated coal loading/unloading area along the west central boundary of Site M6 would include removal of bedrock by blasting to a depth of approximately 65 ft below ground surface. This gave rise to concerns that the blasting required to break up the Silurian dolomite bedrock could affect the Maquoketa Shale confining unit beneath Site M6. Recommendations were made to evaluate whether the project would be compatible with RAOs in the ROD. In June of 2008, the Chicago Tribune reported that the planned development was abandoned due to business and environmental concerns unrelated to the site conditions; therefore, this will have no impact on the protectiveness of the remedy

No other information is available to call into the question the protectiveness of the remedy. A summary of the results of the review of the groundwater RGs presented in the ROD and land use conditions applicable to the site are summarized in Attachment 14. The groundwater RGs presented in the ROD are still considered health protective, and groundwater monitoring has

shown no exceedances of the groundwater RGs outside of the GMZ. ICs should be effective in preventing exposure to contaminated groundwater when the property is transferred from the U.S. Army if they are consistent with those required in the initial deed documents for previous non-federal transfers in the MFG Area.

### 7.3.4 Site M7

Site M7, the Red Water Area, situated in the central part of the MFG Area, includes approximately 49 acres, and unlike most of the other sites, is bordered on all sides by other sites (**Attachment 1-2**). Site M7 includes a cluster of structures in the northern one third of the site, which was part of a red water treatment facility. The facility is referred to in past reports as the open storage tank. Included in the open storage tank area are three sets of storage tanks, evaporators, and incinerators. These facilities treated the effluent from the TNT production lines, which were discharged into the TNT Flume System. At one time there was a two-acre lagoon immediately north of the open storage tank area. This lagoon, which provided the extra holding capacity for red water, was removed in 1985. The monitoring well network at this site consists of four overburden wells, one combined well, and two bedrock wells (figures in **Attachment 1**). Site M7 has received closure status for soils as documented in the *Final Site M7 Closure Report* (MWH, November 2003).

#### 7.3.4.1 Question A: Is the Remedy Functioning as Intended By the Decision Documents?

Chemistry – Groundwater from Site M7 was sampled for explosives, VOCs and sulfate during October 2007. Natural attenuation indicator parameters have not been sampled since October 2003. Historic data tables are included in Attachment 4. The extent of the explosives plume in groundwater and individual explosives compound detections during October 2007 at Site M7 have been included in figures presented in **Attachment 1**.

The RG for TNT has historically been exceeded at well MW124R, particularly following RA activities for the SOU. TNT was detected at concentrations of 5.5 µg/L and 13 µg/L, respectively during the most recent monitoring events in October 2007 and May 2008. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses indicate a decreasing trend in concentration versus time for TNT at MW124R. There have been no other RG exceedances for TNT at Site M7.

The RG for 2,4-DNT has been routinely exceeded at well MW124R (**Attachment 4**) occasionally exceeded at wells MW158, MW660, and MW661. 2,4-DNT was detected at levels above the RG at well MW158 during December 2000, but has not been detected since. The detected concentration of 2,4-DNT at well MW124R was 1.7µg/L and 1 µg/L, respectively during October 2007 and May 2008. No other M7 wells exceeded the RG.

The RG for 2,6-DNT (0.42 µg/L) has not been exceeded at MW124R since the Spring 2007 sampling event at, 1.7 µg/L. The preponderance of Mann-Kendall and Mann Whitney U statistical analyses did not indicate a stable trend in concentration versus time for either DNT

compound at MW124R, however this has likely been influenced by soil excavation activities conducted at Site M7

Exceedances of the RG for RDX (2.6 µg/L) have occurred at well MW124R. RDX concentrations have declined from the maximum observed concentration of 46 µg/L during November 1985 to 2.5 µg/L during October 2007. Mann-Kendall and Mann Whitney U statistical analyses did not indicate a stable trend in concentration versus time for RDX at well MW124R (Attachment 10). RDX concentrations had dropped below detection limits during 2000 and 2001, but exceeded RGs again after soil excavation activities occurred from July through October 2001. RDX has not been detected in any other wells at Site M7.

In **Attachment 8**, best-fit curves are extrapolated through the 2,4-DNT, RDX and PCE concentrations presented on the graphs. In order to get an estimate of the time required for the selected explosives compounds to naturally degrade to less than site RGs, the equation to the best-fit curve in **Attachment 8** are used to project potential contaminant reduction rates. **Table 12** summarizes the results of this analysis. Given the equation to the best-fit curve for 2,4-DNT, RDX and PCE at MW124, the estimated year at which these compounds should have naturally degraded to less than site RGs was 2025, 1998, and 1987, respectively. The cleanup dates for RDX and PCE at this location were calculated to be 2005 and 1997, respectively in the previous Five Year Review. No cleanup date was calculated for 2,4-DNT for this location in the previous Five Year Review.

PCE was reportedly detected above the RG (5 µg/L) at monitoring well MW124 during November 1985. Subsequent resampling of well MW124R during August 1991 and December 1998 resulted in detections of 4 µg/L and 3.6 µg/L, respectively. During the current review period, it was detected at 1.2 µg/L and 1.6 µg/L in 2004 semiannual sampling, and was not detected during May 2008.

1,1,1-Trichloroethane (1,1,1-TCA) was detected at levels above the RG (200 µg/L) at well MW124 during 1981 and at levels below the RG during 1985 and 1991 (**Attachment 4**). Subsequent resampling of MW124R for VOCs during baseline activities in December 1998 indicated no detection of 1,1,1-TCA. 1,1,1-TCA was not detected in May 2008.

Bioparameters – Site M7 has shown declining concentrations of RDX, 2,4-DNT, and PCE. TNT biodegradation daughter products 2a,4,6-DNT and 4a,2,6-DNT have routinely been detected at Site M7 well MW124R. Because of the significant contaminant reductions and the presence of anaerobic biodegradation products of TNT (2a,4,6-DNT and 4a,2,6-DNT), Other bioparameters, such as nitrates, sulfides, TOC, etc., were not collected during the current Five Year Review period. Site M7 is considered to have adequate potential for biodegradation of explosives compounds.

Geology – The unconsolidated deposits at Site M7 consist primarily of surficial clays. Depth to bedrock ranges from 5 to 13 ft. No significant bedrock fracture traces are shown on the fracture trace maps for Site M07.

Hydrogeology -Groundwater flow is to the west/northwest at the site (figures in **Attachment 1**). The water table depth ranged from 5.30 to 7.84 ft below ground surface during October 2007. Flow in the bedrock at Site M7 is toward the west/northwest (figures in **Attachment 1**). Water level elevations versus time plots for Site M7 monitoring wells are included in **Attachment 5**. In general, other than seasonal variation, no drastic changes in groundwater elevation have occurred at site monitoring wells; however, water levels recorded during the April 2008 sampling event were significantly higher than any level previously observed. The 2008 calendar year was one of the wettest years in recorded history.

Observed vertical gradients during October 2007 indicated upward gradients in the northern portion of the site and slightly downward gradients in the southern portion of Site M7 (**Table 15**). The average horizontal gradient during October 2007 was 0.00496 feet/foot (**Table 14**). Horizontal gradients have ranged between 0.00496 feet/foot and 0.0144 feet/foot during LTM activities from 1999 through 2007. Assuming an effective porosity of 0.30, the average linear velocity during October 2007 was 0.0314 feet/day (**Table 16**). Linear velocities have ranged from 0.0314 feet/day to 0.0747 feet/day during LTM activities at Site M7.

Model Results - Monitoring well MW124R was selected as the source location for the model. The May 1981 2,4-DNT detection (53.2 µg/L) was selected as the source concentration. The model results indicate that the maximum predicted distance of RG exceedances (<450 ft) will remain within the GMZ (2,300 ft). This is approximately two orders of magnitude greater than the modeling results presented in the previous Five Year Review which predicted a transport distance of RG exceedances of (<5 feet). Model results have been summarized in **Table 13** and included in **Attachment 11**.

Summary - Groundwater samples from LTM at Site M7 indicate RG exceedances for explosive compound 2,4-DNT occurred at overburden well MW660 and bedrock wells MW158 and MW661. The remaining RG exceedances for RDX, TNT, TNB, 2,4-DNT, and 2,6-DNT occurred at combined well MW124R. Modeling results indicate that the maximum predicted travel distance of contaminants will not go beyond the GMZ.

The technical assessment indicates that the remedy is functioning as intended by the decision documents. Soil OU RA activities, conducted during 2001 have removed the soil source loading groundwater at Site M7. **Tables 8, 9, and 11** list the ICs implemented at Site M7. ICs are effective in preventing exposure to contaminated groundwater. The groundwater remedy is protective of human health and the environment. The ICs required by the initial deed documents for previous non-federal transfers in the MFG Area should be effective in preventing exposure to contaminated groundwater when the remainder of the M7 property (the Red Water Area) is transferred from the U.S. Army. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5.

#### **7.3.4.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site M7 is located on land that has been incorporated by the Village of Elwood is zoned for intermodal and related uses (I-4A). The majority of Site M7 is currently developed and utilized for intermodal land use, and a portion (Red Water Area) is currently owned and managed by the U.S. Army and is not currently utilized. Intermodal land use is the only future development anticipated. Site M7 is surrounded to the east by similar land use zoning areas; and to the west by the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

#### **7.3.4.3 Question C: Has Any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. Land use controls adequately prevent exposure to the groundwater within the GMZ.

### **7.3.5 Site M8**

Site M8 – The Acid Manufacturing Area, includes approximately 304 acres immediately east of TNT Road (**Attachment 1-2**). Site M8 included facilities for the manufacture and storage of nitric and sulfuric acids. In addition to an extensive network of piping, many ASTs and USTs were also present. The monitoring wells at this site consist of four overburden wells, and two combined wells (figures in **Attachment 1**). The soil COC at Site M8 was Sulfur. Sulfur is not a CERCLA regulated waste, and was not identified in the October ROD as a risk to industrial receptors in any media at the site.

#### **7.3.5.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?**

Chemistry – Groundwater from Site M8 was sampled for explosives, VOCs, and sulfate during October 2007. Detections of explosives and VOCs at each monitoring well sampled at Site M8 during October 2007 have been included in figures presented in **Attachment 1**.

No RG exceedances of explosives or VOCs were identified. The reported sulfate concentrations at Site M8 wells, MW148RR (290 µg/L), MW325R (410 milligrams per liter [mg/L]), and MW330 (570 mg/L) during May 2008. Each of these wells had exceedances of the RG of 400 mg/L during this Five Year Review period.

Exceedances of the RGs for 2,4-DNT and 2,6-DNT (both 0.42 µg/L), of 1.1 µg/L and 1.4 µg/L, respectively, occurred at monitoring well MW325 during the current review period. No detections of 2,4 DNT or 2,6-DNT occurred May 2008 at MW325R, and No other exceedances of explosives RGs have occurred at Site M8. Low levels of 2a,4,6-DNT and 4a,2,6-DNT have

been detected at MW325R during the fall of 1999, 2001, and 2003. There are no RGs for these compounds.

VOCs including 1,1,1-TCA, 1,1-DCA, 1,2-DCE, methyl ethyl ketone (MEK), acetone, ethyl benzene, PCE, toluene, trichloroethylene (TCE), xylenes, vinyl chloride, and methylene chloride; have historically been detected at Site M8 (Attachment 4). Exceedances of RGs have only occurred for PCE and vinyl chloride. PCE was reported at concentrations greater than the RG (5 µg/L) during December 1994 and May 2000 at well MW148RR. Vinyl chloride has not been detected during the current Five Year Review period. PCE was detected in one sampling event conducted during the current review period, at a concentration of 1 µg/L during May 2008 at MW148RR.

1,2-DCE has been detected at monitoring well MW327R at levels less than the RG of 70 µg/L. Concentrations have decreased from the maximum observed concentration of 34 µg/L during October 1999 to no detection since May 2002 (**Attachment 4**). 1,1-DCA and 1,1,1-TCA have been detected at wells MW148RR and MW323R but levels remain below RGs (700 µg/L and 200 µg/L, respectively). The remaining VOC detections are sporadic with little to no reproducibility among sampling events.

Bioparameters –Site M8 has shown declining concentrations of PCE. Site M8 has had reported detections of TNT anaerobic degradation byproducts 2a,4,6-DNT and 4a,2,6-DNT at well MW325R. In addition, wells MW148RR and MW323R have exhibited declining concentrations of 1,1,1-TCA and the presence of its biodegradation product 1,1-DCA. Other bioparameters, such as nitrates, sulfides, TOC, etc., were not collected during the current Five Year Review period. This site continues to exhibit adequate evidence of natural attenuation.

Geology – The unconsolidated deposits at Site M8 consist of silty clays, silty sands and silts with occasional deposits of permeable sand or gravel over dolomite bedrock. Depth to bedrock ranges from 13 to 18 ft. Fracture trace maps indicate two major bedrock fractures that intersect at the central portion of Site M8 and trend northeast-southwest and northwest-southeast. Two additional parallel fractures that trend northeast-southwest are located in the northern portion of Site M8.

Hydrogeology -Groundwater flow is to the southwest in the southern and northern portions of site M8. A groundwater high was present in the central portion of the site around monitoring well MW325R. The water table depth ranged from 12.19 to 27.75 ft below ground surface during October 2007. Flow in the bedrock in the southern portion of Site M8 is toward the southwest (figures in **Attachment 1**). No potentiometric surface information is available for the northern portion of Site M8 due to the lack of bedrock wells at the site. Water level elevations versus time plots for wells at Site M8 are included in **Attachment 5**. The plots have indicated a decreasing trend in water elevations at wells MW148RR and MW324R. These wells are located within the Intermodal Center, which is part of the Industrial Park property transferred to the State of Illinois. The area has had extensive asphalt paving, which is likely decreasing groundwater recharge in that area. In general, other than seasonal variation, no drastic changes in groundwater elevation have occurred at site monitoring wells; however, water levels recorded

during the April 2008 sampling event were significantly higher than any level previously observed. The 2008 calendar year was one of the wettest years in recorded history.

Vertical gradient information is unavailable due to the absence of well nests at the site. The average horizontal gradient during October 2007 was 0.00356 feet/foot (**Table 14**). Horizontal gradients have ranged from 0.0003 feet/foot to 0.0177 feet/foot between October 1999 and October 2007. The average linear flow velocity at Site M8 during October 2007 was 0.0081 feet/day (**Table 16**). Linear flow velocities have ranged from 0.0006 feet/day during October 2001 to 0.0401 feet/day during October 2007 at Site M8.

Model Results – Exceedances of 2,4-dinitrotoluene and 2,6-dinitrotoluene above their RG were observed at well MW325R between 2004 and 2007; however, the exceedances were only one order of magnitude greater than RG of 0.42 µg/L. Additionally, the nearest downgradient well is MW212R, which has exceedances which are five to six orders of magnitude greater than the RG. Therefore, modeling was not conducted for this site. No exceedances of any RGs were reported and no groundwater modeling was required in support of the monitored natural attenuation remedy during the first five-year review period.

Summary – The only RG exceedances for explosives compounds at Site M8 during LTM activities (June 1999 through May 2008) have been low levels of 2,4 DNT and 2,6 DNT, detected in MW325R during the current review period.

VOC exceedances occurred at well MW148RR during May 2000 for PCE and vinyl chloride at MW327R during June 1999, October 2000, and May 2001. No subsequent detections of PCE or vinyl chloride above the RGs have been reported. VOCs 1,1-DCA, 1,1,1-TCA, and 1,2-DCE have been detected at well MW323R and 1,1-DCA and 1,1,1-TCA at well MW148RR, but levels have consistently been a minimum of an order of magnitude below RGs. Sulfate exceeded the RG of 400 mg/L at wells MW148RR, MW325R, and MW330 during the current review period.

The technical assessment indicates that the remedy is functioning at Site M8 as intended by the decision documents. **Tables 9 and 11** list the ICs implemented at Site M8. ICs are effective in preventing exposure to groundwater. The groundwater remedy is protective of human health and the environment. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5."

#### **7.3.5.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site M8 is located on land that has been incorporated by the Village of Elwood is zoned for intermodal and related uses (I-4A). Site M8 is currently developed and utilized for intermodal land use. No other land use is anticipated. Site M8 is



surrounded by similar land use zoning areas. The RAOs that were originally selected are still considered appropriate.

### **7.3.5.3 Question C: Has any Other Information Come to Light that Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. Land use controls adequately prevent exposure to the groundwater within the GMZ.

### **7.3.6 Site M13**

Site M13, the Gravel Pits, is located southwest of the Acid Manufacturing Area, and covers approximately 106 acres (**Attachment 1-2**). It includes four areas that served as sources of sand and gravel fill, and as a site for waste dumping. Well abandonment and replacement activities took place at Site M13 during January 2004. The monitoring well network at the site now consists of two overburden wells, one combined well, and four bedrock wells (figures in **Attachment 1**). Remediation has been completed for Site M13 soils; however, final closure has not been received.

#### **7.3.6.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?**

Chemistry – Groundwater was sampled for explosives, VOCs, and sulfate during the current Five Year Review period. The extent of explosives in groundwater has been included in figures presented in **Attachment 1**. No VOCs were detected and sulfate was not detected in excess of the RG during the current Five Year Review period.

The RG for 2,4-DNT and 2,6, DNT (both 0.42 µg/L) have been routinely exceeded at well MW321. Concentrations of 2,4-DNT have declined from the maximum observed concentrations of 120 and 34 µg/L, respectively during October 1991 to non-detectable concentrations during May 2008. Mann-Kendall statistical test results indicated a decreasing trend with an 80% confidence level for both compounds. The estimated time at which this compound will naturally degrade to less than the site RG is 34 years (or in the year 2043; **Table 12**).

Bioparameters – Site M13 has shown declining concentrations of explosives. TNT anaerobic degradation byproducts 2a,4,6-DNT and 4a,2,6-DNT have routinely been detected at site monitoring wells MW126, MW321, and MW350 during LTM activities at Site M13. Other bioparameters, such as nitrates, sulfides, TOC, etc., were not collected during the current Five Year Review period. This site continues to exhibit adequate evidence of natural attenuation of explosive compounds.

Geology – The unconsolidated deposits at Site M13 consist of silty clays, silty sands, silts, and sands. Some of the sand deposits are up to 15 ft thick in the southern portion of the site. Depth to bedrock ranges from 19 to 34 ft. The fracture trace map indicates three small bedrock fractures located in the southern portion of Site M13. The fractures generally trend northeast-southwest.

Two additional parallel bedrock fractures that trend northeast-southwest are located in the northern portion of Site M8.

Hydrogeology - Groundwater flow is generally to the southwest at the site. However, the presence of a former gravel pit in the northern portion of the site appears to provide additional recharge to the water table, creating a slight southern component of flow on the south side of the pit (figures in **Attachment 1**). The water table depth ranged from 15.95 to 29.05 ft below ground surface during October 2007. Flow in the bedrock at Site M13 is toward the west-southwest (figures in **Attachment 1**). Water level elevations versus time plots for wells at Site M13 are included in **Attachment 5**. In general, other than seasonal variation, no drastic changes in groundwater elevation have occurred at site monitoring wells; however, water levels recorded during the April 2008 sampling event were significantly higher than any level previously observed. The 2008 calendar year was one of the wettest years in recorded history.

The vertical gradient at well nest MW321/MW322 was downward and vertical gradient at well nest MW363/MW354 was upward during October 2007. The vertical gradient has remained downward during most years between 1999 and 2007 at Site M13 (**Table 15**). The average horizontal gradient at Site M13 during October 2007 was 0.00339 feet/foot (**Table 14**). Horizontal gradients at Site M13 have ranged from 0.0033 feet/foot to 0.0068 feet/foot during LTM activities. Assuming an effective porosity of 0.30, the average linear velocity during October 2007 was 2.5639 feet/day (**Table 16**). Flow velocities have ranged from 2.4938 feet/day to 5.1388 feet/day at Site M13 during LTM activities.

Model Results - Monitoring well MW321 was selected as the source location for the model. The October 1991 2,4-DNT result (120 µg/L) was selected as the source concentration. A first order decay rate constant of  $2.19 \times 10^{-1} \text{ yr}^{-1}$  was used for 2,4-DNT. The first order decay rate constant is based on LTM analytical data (Attachment 8). The model results indicate the maximum predicted transport distance of RG exceedances (<2,100 ft) will remain within the GMZ (3,200 ft). This is greater than, but generally consistent with, results presented in the previous Five Year Review which predicted a transport distance of RG exceedances of (<1,200ft). Model results have been summarized in **Table 13** and included in **Attachment 11**.

Summary - Exceedances of the RG for 2,4-DNT and 2,6-DNT occurred at in-plume combined well MW350. In addition, RG exceedances occurred for 2,4-DNT, 2,6-DNT, and TNB at in-plume bedrock well MW321. Mann-Kendall statistical test results indicate stable trends for TNT and a decreasing trend for 2,4, DNT at monitoring well MW321. BIOSCREEN modeling results indicate a maximum predicted transport distance of RG exceedances for 2,4-DNT will not exceed the GMZ. There were no detections for explosives at the early warning wells M3 or MW345 during LTM conducted from 1999 through 2008 (Attachment 4).

The technical assessment indicates that the remedy is functioning at Site M13 as intended by the decision documents. The groundwater remedy is expected to be protective of human health and the environment when soil RA activities are completed at the site. Soil RA activities are scheduled to occur during fiscal year 2007. **Tables 9 and 11** list the ICs implemented at Site M13. ICs are effective in preventing exposure to contaminated groundwater. Additional ICs will be required for the M13 landfill to prevent exposure to contaminated groundwater when it is

transferred from the U.S. Army. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5.

#### **7.3.6.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site M13 is located on land that has been incorporated by the Village of Elwood is zoned for intermodal and related uses (I-4A). Site M13 is currently developed and utilized for intermodal land use and a closed and capped landfill. No other land use is anticipated. Site M13 is surrounded by similar land developed and utilized for intermodal. The RAOs that were originally selected are still considered appropriate.

#### **7.3.6.3 Question C: Has any Other Information Come to Light that Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. Land use controls adequately prevent exposure to the groundwater within the GMZ.

### **7.4 GRU3 – VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER**

GRU3 is entirely in the MFG Area and consists of separate plumes emanating from sources at Sites M3 and M10 (**Attachment 1-2**). The following discussions are a summary of the LTM groundwater quality results along with a summary of site characteristics. The purpose of these summaries is to evaluate whether the monitored natural attenuation remedy is performing adequately at each site.

#### **7.4.1 Site M3**

Site M3 – Flashing Grounds, consist of a 66-acre tract in the west central part of the MFG Area (**Attachment 1-2**). The Flashing Grounds were used to flash burn equipment to remove explosive residues. Monitoring wells at the site consist of eleven shallow bedrock wells and one combination well. The Site M3 outline and the monitoring well locations have been included in figures presented in **Attachment 1**. Site M3 was included in GRU3 because benzene was detected in well MW233 at a concentration exceeding the RG during August 1991. The USEPA and IEPA approved the suspension of sampling at wells in Site M3 during the LTM until soil excavation activities were completed, based on no detections of benzene, toluene, ethyl benzene, and xylenes (BTEX) at wells within site M3. Site M3 has received closure status for soils as documented in the *Draft Final Closure Report, Sites L2, L5, L23A, M3, M4, and M12* (MWH, March 2008). Key wells were sampled in Spring 2008, with non-detectable results for VOCs. If

similar results are obtained for the Fall 2008 sampling event, no further monitoring should be required for Site M3.

#### **7.4.1.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?**

Chemistry - Groundwater at the M3 Site was last sampled for VOCs during May 2008. No detections of VOCs were identified. Historically, benzene has exceeded the RG (5 µg/L) at well MW233 (**Attachment 4**). Monitoring wells MW112 and MW113 are sampled for explosives as compliance wells for Site M7. No detections of explosives have occurred at these sampling locations during LTM activities. An exceedance of the RG for 1,3-Dinitrobenzene (1,3-DNB; 10 µg/L) occurred at well MW233 during July 1988. Subsequent resampling of the well during August 1991 indicated no detection of 1,3-DNB.

Bioparameters – Because there were no detected contaminants at this site, the evaluation of bioparameters was not necessary.

Geology – The unconsolidated deposits at Site M3 consist of clay and silt with some thin sand, and sand and gravel deposits. Depth to bedrock ranges from 2 ft to 10 ft at Site M3. The fracture trace map indicates the presence of one bedrock fracture trending northwest-southeast, located beneath the southeast portion of Site M3.

Hydrogeology - Groundwater flow in the bedrock is to the northwest at Site M3 (figures in **Attachment 1**). Water table elevations could not be contoured for Site M3 due to the lack of water table wells at the site. Because depth to bedrock ranges from 2 to 10 ft below ground surface (BGS) at Site M3 and depth to water ranges from approximately 9 to 12 ft BGS, installation of wells strictly as water table wells at Site M3 would not be practicable. Figures in **Attachment 1** illustrate the thin unconsolidated deposits at Site M3. No vertical gradients or horizontal gradients were calculated for the site due to the lack of data.

Model Results - Based on the absence of any RG exceedances (no detections) for VOCs at Site M3, no groundwater modeling was completed in support of the monitored natural attenuation remedy.

Summary - Site M3 was included in GRU3 because benzene was detected at well MW233 at a concentration exceeding the Class I Groundwater standard in the past. Two LTM events conducted during June and October 1999 showed no groundwater VOC RG exceedances at well MW233. Groundwater monitoring at the site should resume in the aftermath of the completion of SOU RA activities. Bedrock well MW233 should be sampled for VOCs semiannually for one year following SOU RA activities and bedrock well MW352 should be sampled once, and again if detections of VOCs occur at MW233. When no detections for VOCs occur at site monitoring wells, the site can be recommended for closure.

The technical assessment indicates that the remedy is functioning at Site M3 as intended by the decision documents. The groundwater remedy is protective of human health and the environment. It is anticipated that ICs applicable to MA3 Area property will be implemented and will be effective in preventing exposure to contaminated groundwater when Site M3 is

transferred from the U.S. Army to the USDA FS. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5.

#### **7.4.1.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site M3 is located on land that is zoned Agricultural (A-1) by the Will County Land Use Department, and is surrounded by similar land use areas. There is no current land use for the property. It is currently owned and managed by the U.S. Army. The anticipated future land use is for the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

#### **7.4.1.3 Question C: Has any Other Information Come to Light that Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. Land use controls adequately prevent exposure to the groundwater within the GMZ.

### **7.4.2 Site M10**

Site M10 -The Toluene Tank Farms, are located in the northern portion of the MFG Area and consisted of three AST farms. The ASTs were used for storing toluene through 1976. Each facility is less than 10 acres in size, and originally included four tanks, each enclosed by a berm. The western tank farm was hit by lightning on two occasions; one tank was destroyed in 1970 and another was destroyed in June 1971. Both of the tanks exploded, burned, and were subsequently removed.

#### **7.4.2.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?**

Chemistry: VOC concentrations at Site M10 wells have been less than site RGs since 1998. Groundwater monitoring conducted at Site M10 during 1998, 1999, and 2000 at monitoring wells MW224 and MW220 indicated no detections of toluene. All of the RAOs set in the ROD for Site M10 have been met and the remedy is protective of human health and the environment. The Final Site M10 Closure Report was submitted and accepted in March 2003.

Geology: The overburden aquifer at Site M10 West consists of silty clay, which is approximately 5 feet thick. The overburden aquifer at Site M10 Central primarily consists of silty clay, with some sandy silt and clay. None of the borings at M10 Central reached bedrock, therefore the overburden thickness is unknown.

Hydrogeology: Monitoring wells at Site M10 were abandoned during March 2001. Site M10 has been closed. **Tables 8, 9, and 11** list the ICs implemented at Site M10. ICs are effective in preventing exposure to groundwater. The groundwater remedy is protective of human health and the environment. ICs must continue to be monitored, maintained and enforced to assure that the remedy functions as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5."

**7.4.2.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Still Valid?**

The exposure assumptions, toxicity data, and cleanup levels were reviewed and there were no significant changes that were found that would affect the RGs for groundwater presented in the ROD (refer to **Attachment 14**). Site M10 east is located on land that has been incorporated by the Village of Elwood is zoned for industrial park uses (I-4B). Site M10 East is currently developed and utilized for industrial park uses and is surrounded by similar land use zoning areas. Industrial land use is the only future development anticipated. Site M10 west is located on unincorporated land that is zoned Agricultural (A-1) by the Will County Land Use Department, and is surrounded by similar land use areas. The anticipated future land use is for the USDA Forestry Service Midewin National Tallgrass Prairie conservation area. The RAOs that were originally selected are still considered appropriate.

**7.4.2.3 Question C: Has any Other Information Come to Light that Could Call Into Question the Protectiveness of the Remedy?**

No information is available to call into the question the protectiveness of the remedy. The RGs for groundwater presented in the ROD are still considered health protective, and groundwater monitoring has shown no exceedances of RGs for groundwater outside of the GMZ. Land use controls adequately prevent exposure to the groundwater within the GMZ.

## 8.0 ISSUES

**Table 17 - Issues**

<b>Issue</b>	<b>Currently Affects Protectiveness (Y/N)</b>	<b>Affects Future Protectiveness (Y/N)</b>
Monitor well gauging reports included with the 2007 and 2008 Semi Annual LTM Reports indicate that almost all of the monitor wells accessed at this time have some degree of damage to, or deterioration in condition of, the concrete well pads.	N	Y
The well casings to MW410 and MW411 in L3 are reported to be damaged, and neither well is equipped with a lock. The well casing to MW159 in M7 is reported to be damaged. MW803 and MW805 in M11 are not equipped with locks.	N	Y
Recommendations in the previous Five Year Review to sample for sulfate at Site M8 MW361R have not yet been implemented.	N	N
Recommendations made in the previous Five Year Review to sample for VOCs at Site M7 MW124 for two consecutive sampling events have been at least partially implemented. MW124 was sampled for VOCs in May 2008. No VOCs were detected. No data is available to determine whether MW124 was sampled for VOCs in October 2008.	N	N
Groundwater in L2 and L3 has not been monitored for metals since 2003. Metals could have been mobilized from soil to groundwater during the remediation of the SOU in the popping furnace area.	N	N
The owners of the Prologis Industrial Park should provide documentation to the U.S. Army, similar to that provided by Centerpoint Industrial Park, to verify that they understand and are in compliance with the institutional controls and deed restrictions placed on their property.	Y	Y
Because remedial actions for the vast majority of Soil Operable Unit Sites were completed during the time between the First and Second Five Year Reviews, combining the documents for the SOU and GOU for the next Five Year Review should be considered to avoid unnecessary redundancy and present the data in an integrated format.	N	N

## 9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

**Table 18 - Recommendations and Follow-Up Actions**

Issues	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Monitoring Well condition	Repair and/or maintain well pads (general comment).	U.S. Army	IEPA/ USEPA	4/30/10	N	N
Monitoring Well condition	Repair well casings at MW410, MW411, and MW159. Install new locks at MW410, MW411, MW803 and MW805.	U.S. Army	IEPA/ USEPA	4/30/10	N	N
Groundwater monitoring requirements	Sample monitoring well MW361R at Site M8 for sulfate.	U.S. Army	IEPA/ USEPA	4/30/10	N	N
Groundwater monitoring requirements	Verify whether additional sampling is required at MW124.	U.S. Army	IEPA/ USEPA	10/30/09	N	N



Issues	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Groundwater monitoring requirements	Monitor wells MW501 in L2 and monitor wells MW410, MW411, MW630, and MW631 in L3 should be sampled and analyzed for metals for two consecutive semiannual sampling events to evaluate whether any metals were mobilized from soil to groundwater during the remediation of the SOU.	U.S. Army	IEPA/USEPA	4/30/10	N	N
Institutional controls verification	Submit notification to owners, operators, or managers, of transferred properties to ensure deed restrictions are being followed and institutional controls implemented at the sites are still effective. Consider whether use of the State's one-call system can be used enhance long-term protectiveness of the remedy.	U.S. Army	IEPA/USEPA	4/30/10	Y	Y

Issues	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Reporting for future Five Year Reviews	Consider combining the documents for the SOU and GOU for the next Five Year Review.	U.S. Army	IEPA/ USEPA	05/5/2014	N	N

## **10.0 PROTECTIVENESS STATEMENT(S)**

The limited action remedy, monitored natural attenuation, was chosen for the three GRUs in the GOU.

### **10.1 GRU1 (SITES L1, L2, L3, AND L14)**

The remedy for GRU1 is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals, through natural attenuation. In the interim, exposure pathways that could result in unacceptable risks are being controlled and ICs are preventing exposure to, or the ingestion of, contaminated groundwater.

Long-term protectiveness of the remedial action will be verified during LTM to evaluate potential migration of the contaminant plume down-gradient from the former source areas. Current monitoring data indicate that the remedy is functioning as required and that the plumes remain on site within the respective GMZ. The SOU RA activities completed during the current and previous Five Year Review periods will likely reduce the predicted clean-up times required for contaminant levels in groundwater to drop below RGs.

Long-term protectiveness requires compliance with effective ICs (or Land Use Controls). IC evaluation activities will be developed to ensure that effective ICs are implemented and that the ICs are maintained, monitored and enforced via long-term stewardship as well as maintaining the site remedy components. Annual review and reporting of the institutional controls will be needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the site.

### **10.2 GRU2 (SITES M1, M5, M6, M7, M8, AND M13)**

The remedy for GRU2 is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals, through natural attenuation. In the interim, exposure pathways that could result in unacceptable risks are being controlled and ICs are preventing exposure to, or the ingestion of, contaminated groundwater. All of the RAOs set in the ROD have been fulfilled for Site M8.

Long-term protectiveness of the remedial action will be verified during LTM to evaluate potential migration of the contaminant plume down-gradient from the former source areas. Current monitoring data indicate that the remedy is functioning as required and that the plumes remain on site within the respective GMZ. The SOU RA activities completed during the current and previous Five Year Review periods will likely reduce the predicted clean-up times required for contaminant levels in groundwater to drop below RGs.

Long-term protectiveness requires compliance with effective ICs (or Land Use Controls). IC evaluation activities will be developed to ensure that effective ICs are implemented and that the ICs are maintained, monitored and enforced via long-term stewardship as well as maintaining the

site remedy components. Annual review and reporting of the institutional controls will be needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the site.

### **10.3 GRU3 (SITES M3 AND M10)**

The remedy for GRU3 is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals, through natural attenuation. In the interim, exposure pathways that could result in unacceptable risks are being controlled and ICs are preventing exposure to, or the ingestion of, contaminated groundwater. All of the RAOs set in the ROD for Site M10 have been met and the remedy is protective of human health and the environment. The Final Site M10 Closure Report was submitted in March 2003.

Long-term protectiveness of the remedial action for Site M3 will be verified during LTM. Current monitoring data indicate that the remedy is functioning as required and that the concentrations of contaminants are below the RGs. The SOU RA activities were completed during the current and previous Five Year Review periods.

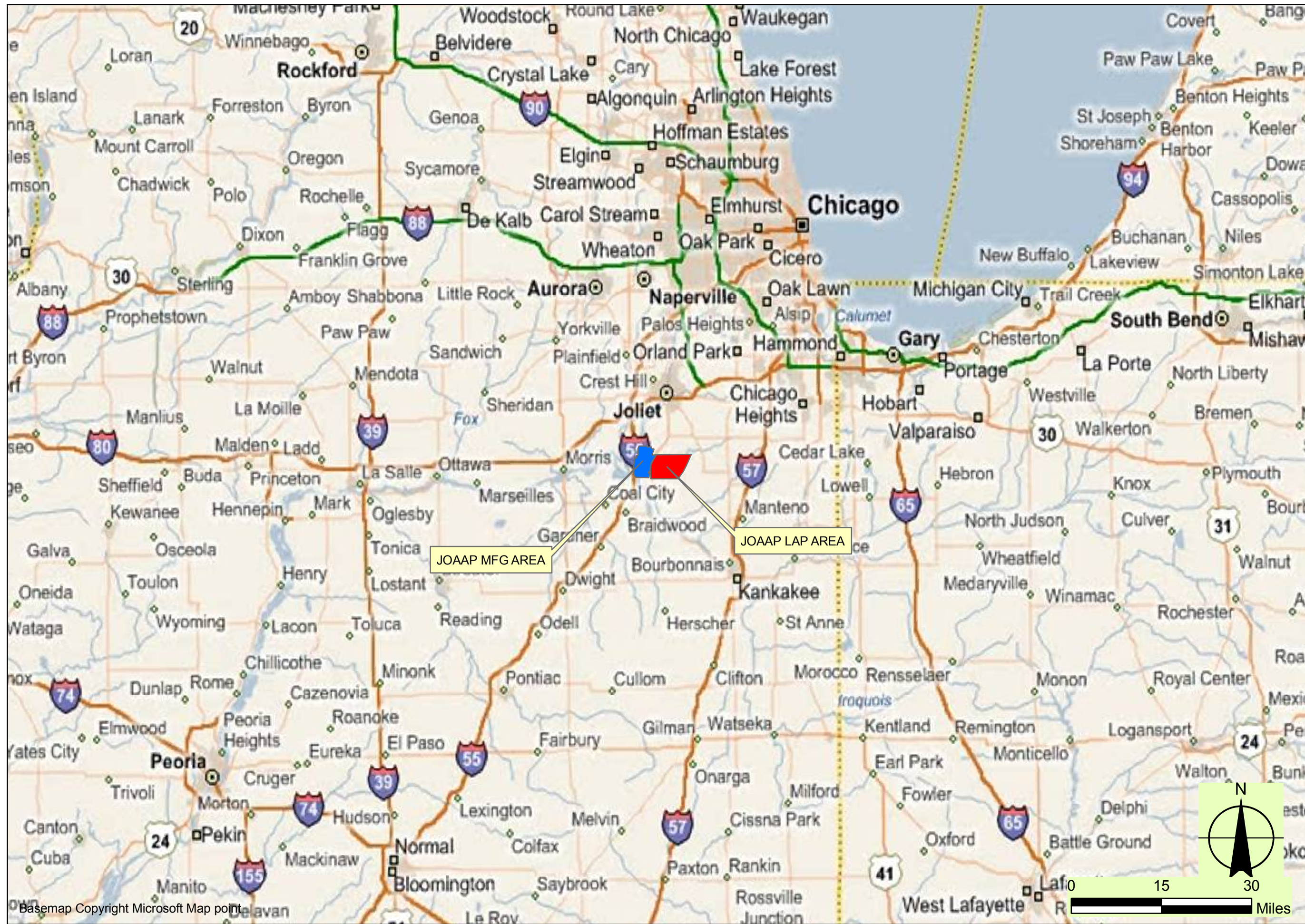
Long-term protectiveness requires compliance with effective ICs (or Land Use Controls). IC evaluation activities will be developed to ensure that effective ICs are implemented and that the ICs are maintained, monitored and enforced via long-term stewardship as well as maintaining the site remedy components. Annual review and reporting of the institutional controls will be needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the site.


## **11.0 NEXT REVIEW**

The Third Five-Year Review Report Groundwater Operable Unit at Joliet Army Ammunition Plant, Wilmington, Illinois will be due in May 2014, five years after the approval date of this Report.

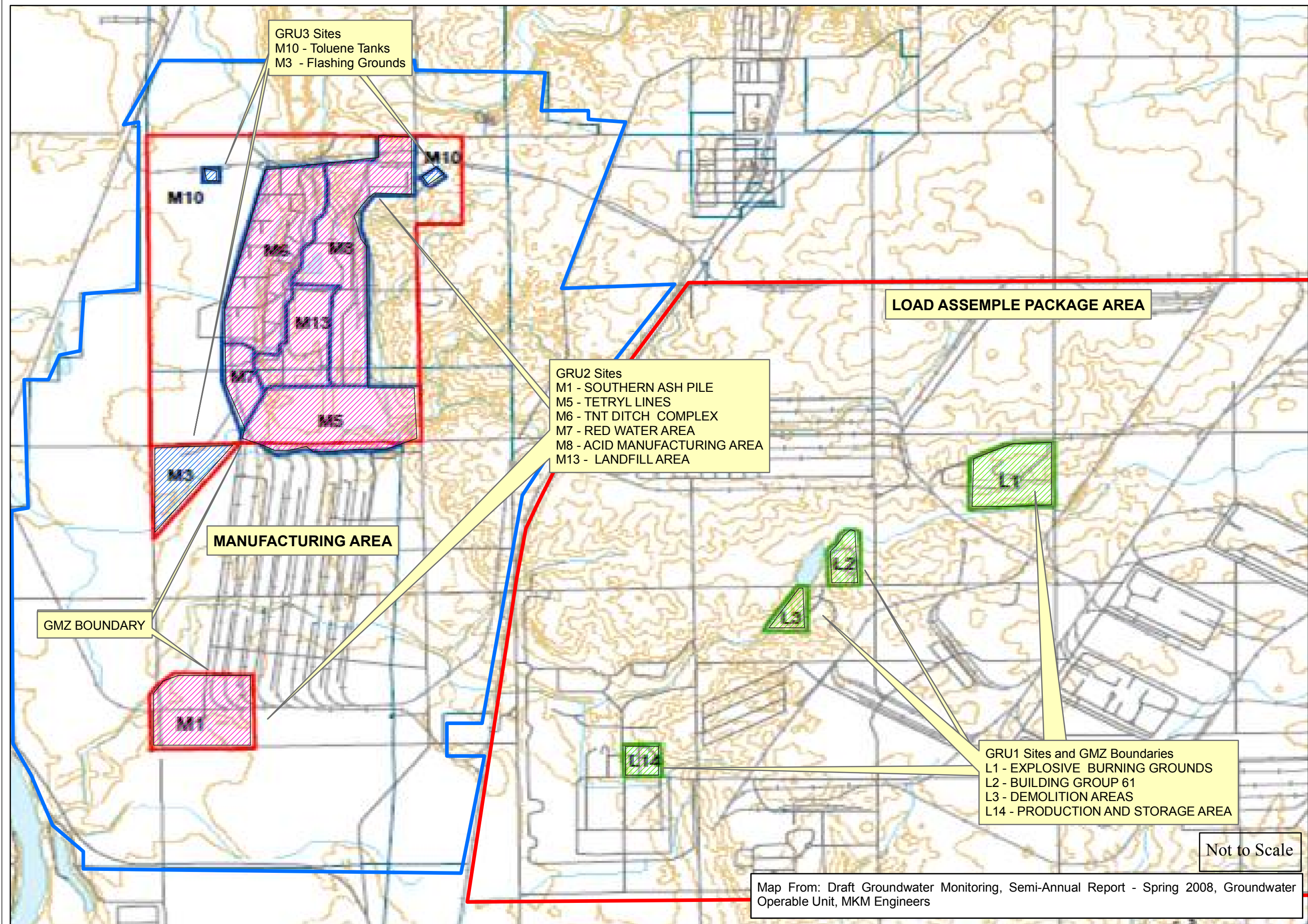
**Attachment 1**  
Project Location and Site Maps






Description		By	Date	Revision
GENERAL LOCATION PLAN				
SECOND FIVE-YEAR REVIEW REPORT				
GROUNDWATER OPERABLE UNIT				
JOLIET ARMY AMMUNITION PLANT				
WILMINGTON, WILL COUNTY, ILLINOIS				
FIGURE: 1				
				





LOCATION PLAN SHOWING GROUNDWATER OPERABLE UNIT SITES AND GROUNDWATER MANAGEMENT ZONES	
Revision	Description
Date	By
SECOND FIVE-YEAR REVIEW REPORT GROUNDWATER OPERABLE UNIT JOLIET ARMY AMMUNITION PLANT WILMINGTON, WILL COUNTY, ILLINOIS	
FIGURE: A1-2	
	



**GRU 5**

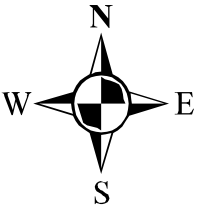
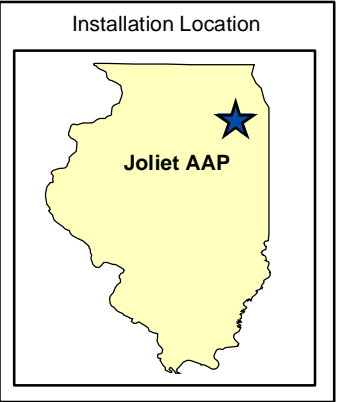
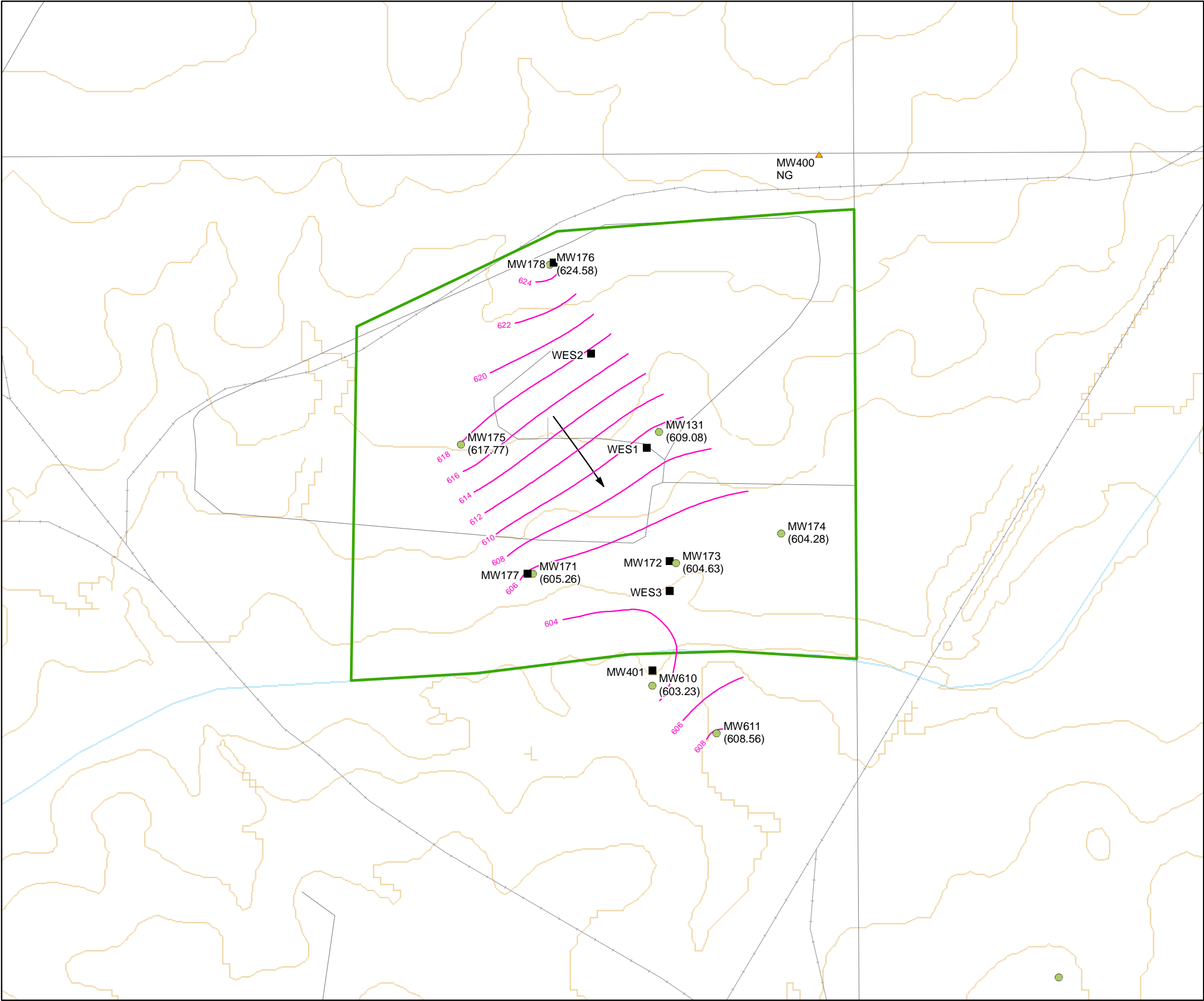
**SITE L1**

Figure 3.1.3  
Water Table Map  
LAP Area, Site L1 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

Legend

- Bedrock Well Location and Number
- ▲ Combination Well Location and Number
- Overburden Well Location and Number
- Groundwater Management Zone (GMZ)
- Small Road
- Major Roads
- Railroads
- Streams
- Ground Elevation Contours (3 meter interval)
- Water Table Contours (Feet AMSL)
- Flow Direction
- Well Number  
Water Elevation (Feet AMSL)
- NG Not Gauged
- AMSL: Above Mean Sea Level



Projection UTM, Zone 16  
Horizontal Datum NAD83  
Units Feet  
1:6,000  
0 0.1 0.2 Kilometers  
0 0.05 0.1 Miles



Figure 3.1.4  
Potentiometric Surface Map  
LAP Area, Site L1 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

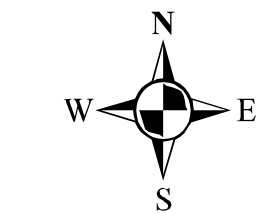
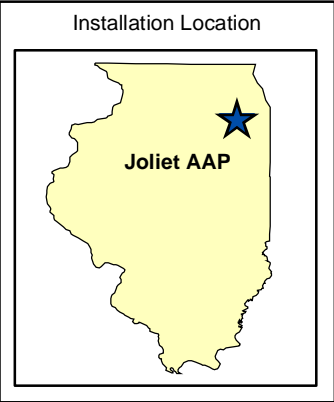
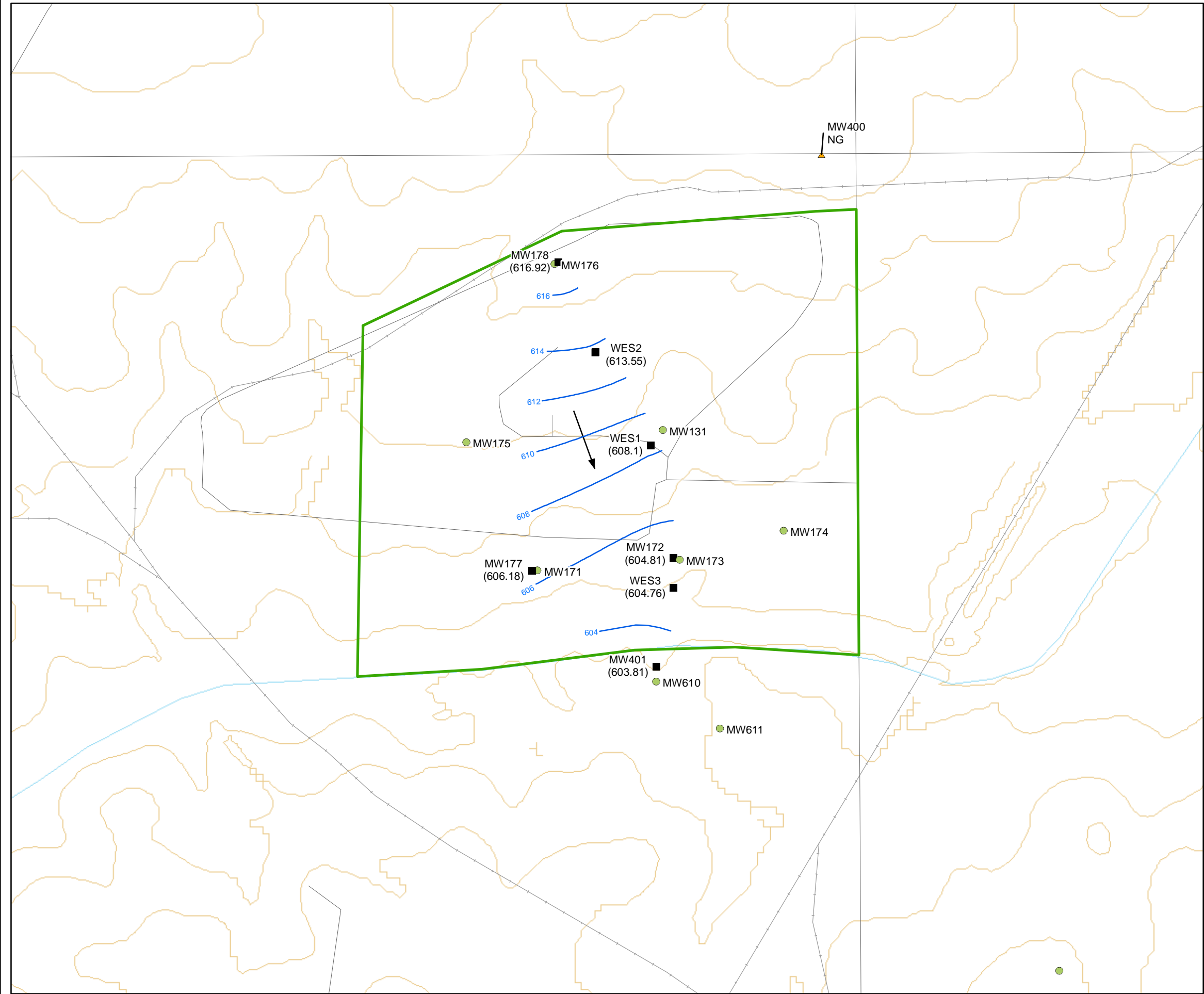
**Legend**

- Bedrock Well Location and Number
- ▲ Combination Well Location and Number
- Overburden Well Location and Number
- Groundwater Management Zone (GMZ)
- Small Road
- Major Roads
- Railroads
- Streams
- Ground Elevation Contours (3 meter interval)
- Potentiometric Surface Contours (Feet AMSL)
- Flow Direction

MW174 (607.49) Well Number  
Water Elevation (Feet AMSL)

NG Not Gauged

AMSL: Above Mean Sea Level



Projection UTM, Zone 16  
Horizontal Datum NAD83  
Units Feet  
1:6,000

0 0.1 0.2 Kilometers  
0 0.05 0.1 Miles





Figure 3.1.5  
Explosives Detections  
LAP Area, Site L1 (2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

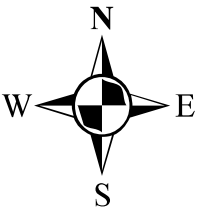
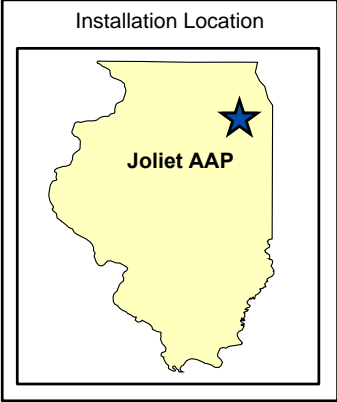
**Legend**

- Bedrock Well Location
- ▲ Combination Well Location
- Overburden Well Location
- ◆ Surface Water Location
- Groundwater Management Zone (GMZ)
- Ground Elevation Contours (3 meter interval)

**Well Type**

- IP In-Plume
- EW Early Warning
- CM Compliance

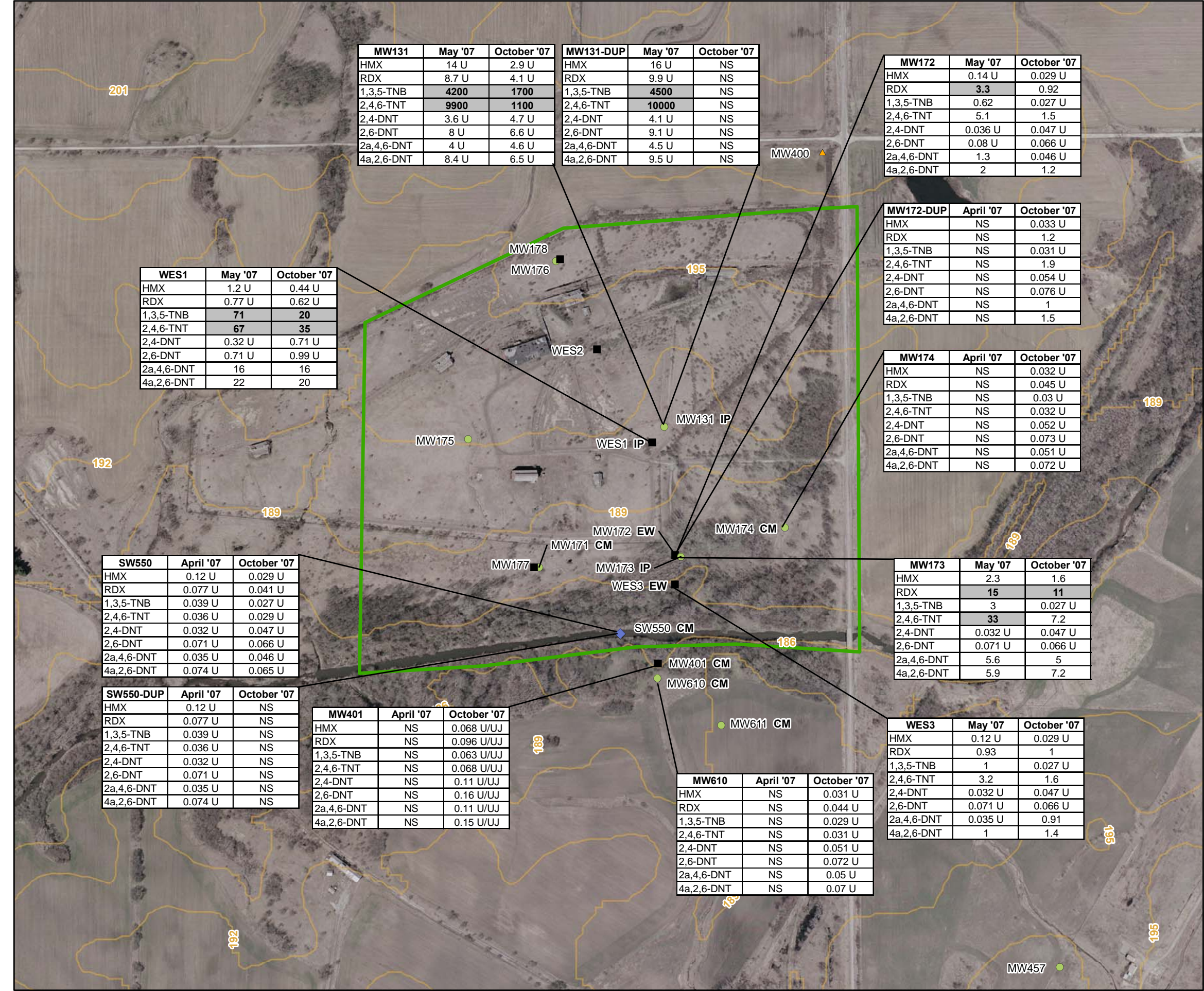
All results are in micrograms per liter (µg/L).  
/ = qualifiers after a slash were determined during data validation  
U = not detected at or above the listed method detection limit  
J = indicates an estimated value  
I = indicates chromatogram interference  
NS = not sampled  
5.1 = detection exceeds remedial goal



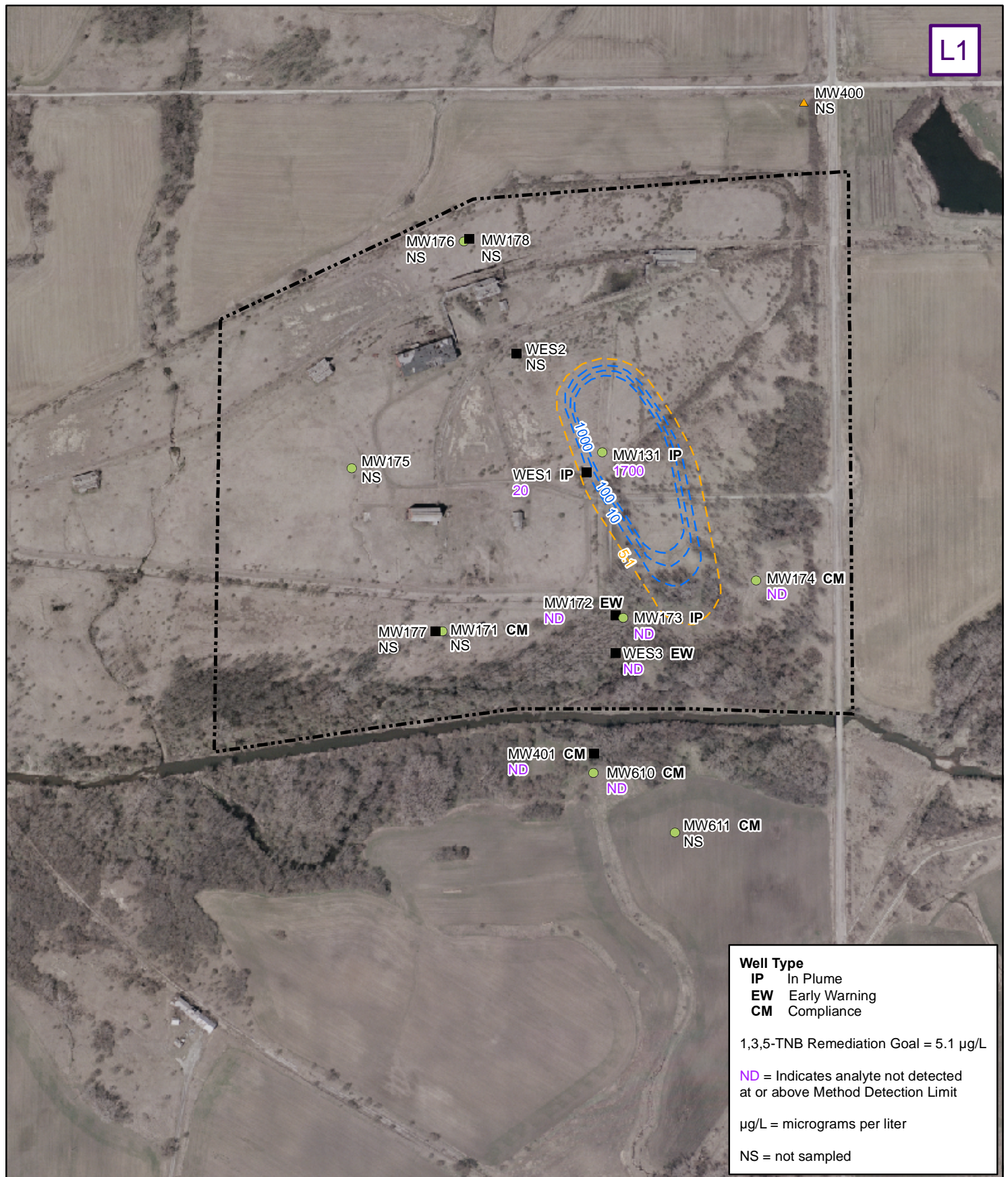
Projection UTM, Zone 16  
Horizontal Datum NAD83  
Units Feet

1:6,000

0 0.1 0.2  
0 0.05 0.1  
Kilometers  
Miles







- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - Remediation Goal Contour Line (µg/L) (inferred)
  - - - Concentration Contour Line (µg/L) (inferred)
  - - - Groundwater Management Zones

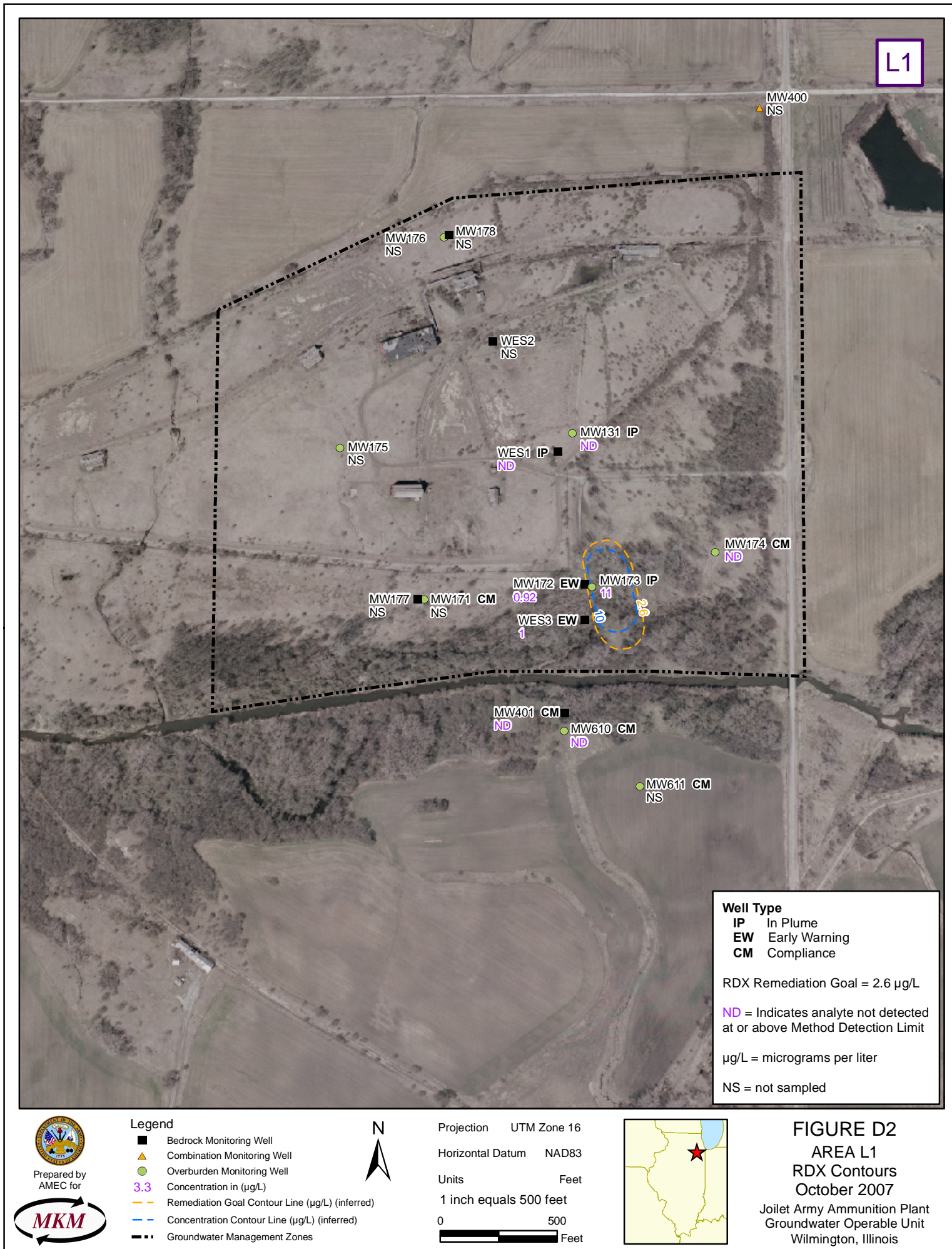


Projection UTM Zone 16  
 Horizontal Datum NAD83  
 Units Feet  
 1 inch equals 500 feet  
 0 500 Feet



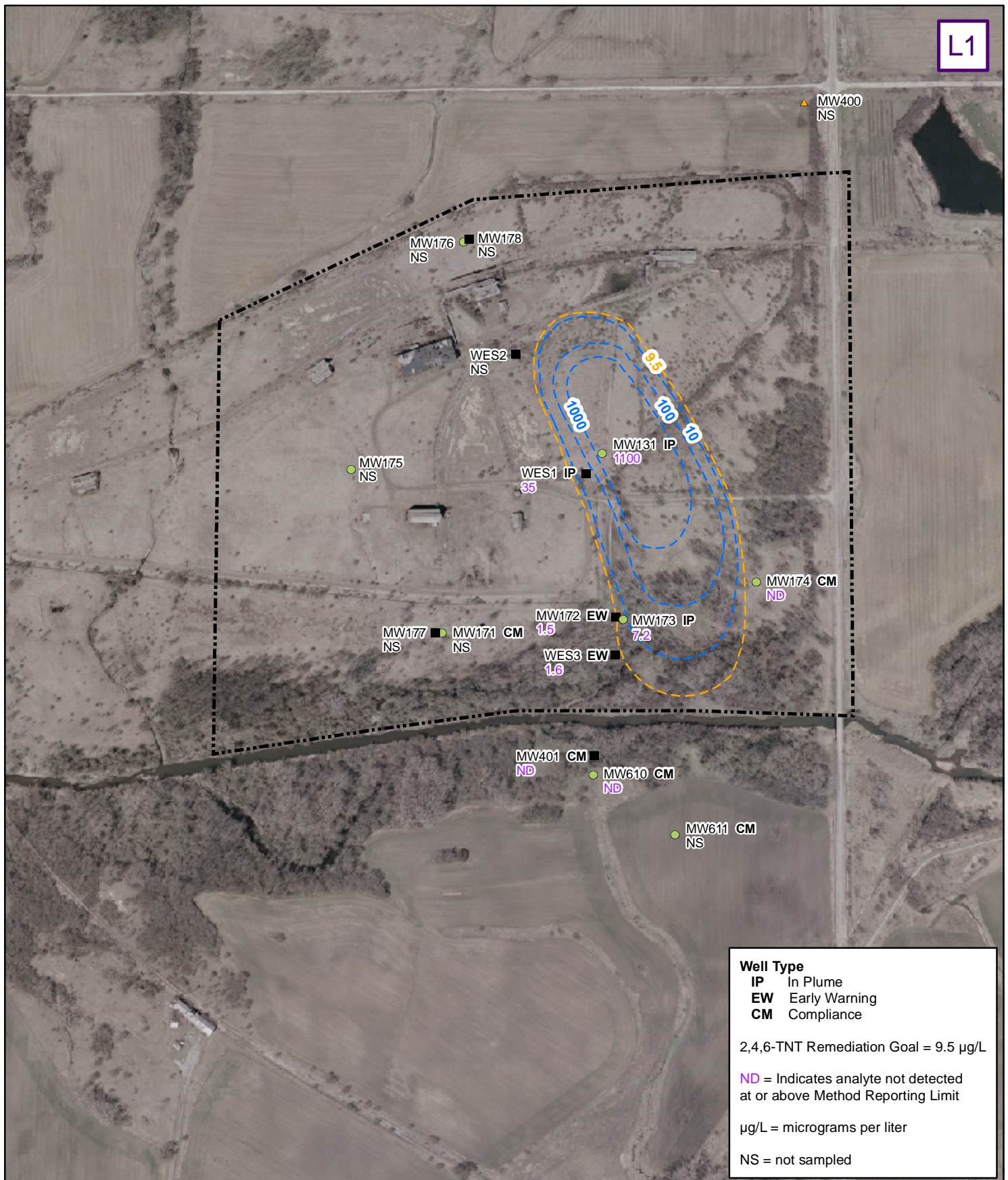
**FIGURE D1**  
**AREA L1**  
**1,3,5-Trinitrobenzene Contours**  
**October 2007**  
 Joilet Army Ammunition Plant  
 Groundwater Operable Unit  
 Wilmington, Illinois







L1



- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - Remediation Goal Contour Line (µg/L) (inferred)
  - - - Concentration Contour Line (µg/L) (inferred)
  - - - Groundwater Management Zones



Projection UTM Zone 16  
 Horizontal Datum NAD83  
 Units Feet  
 1 inch equals 500 feet  
 0 500 Feet



**FIGURE D3**  
**AREA L1**  
**2,4,6-TNT Contours**  
**October 2007**  
 Joilet Army Ammunition Plant  
 Groundwater Operable Unit  
 Wilmington, Illinois



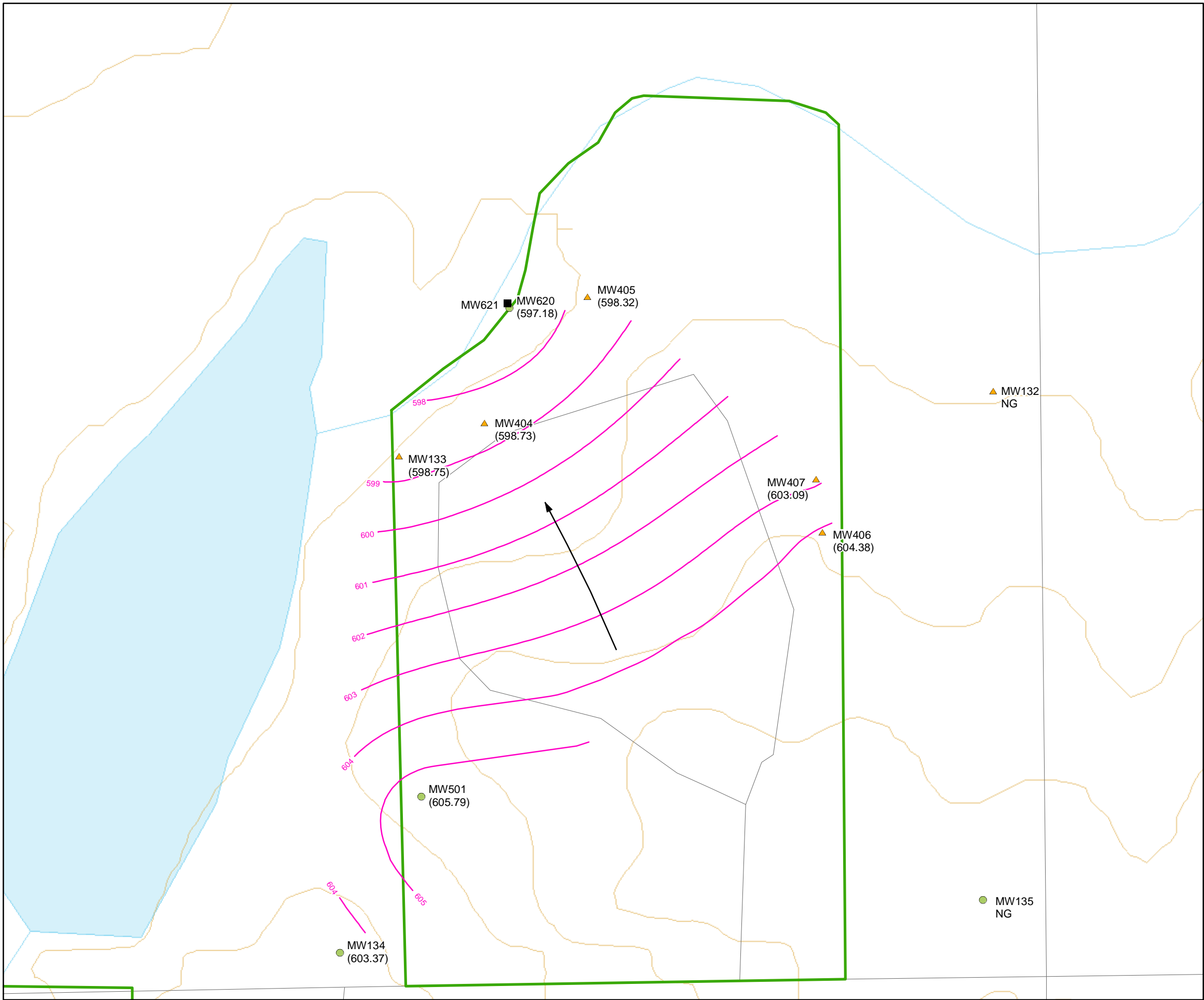
**SITE L2**

Figure 3.2.3  
Water Table Map  
LAP Area, Site L2 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

Legend

- Bedrock Well Location and Number
- ▲ Combination Well Location and Number
- Overburden Well Location and Number
- Groundwater Management Zone (GMZ)
- Small Road
- Major Roads
- Railroads
- Streams
- Ground Elevation Contours (3 meter interval)
- Water Table Contours (Feet AMSL)
- Flow Direction
- Well Number
- Water Elevation (Feet AMSL)
- NG Not Gauged
- AMSL: Above Mean Sea Level



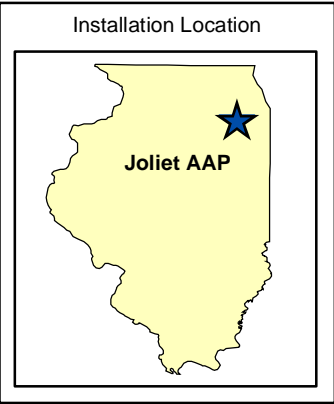
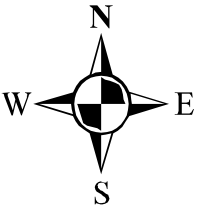
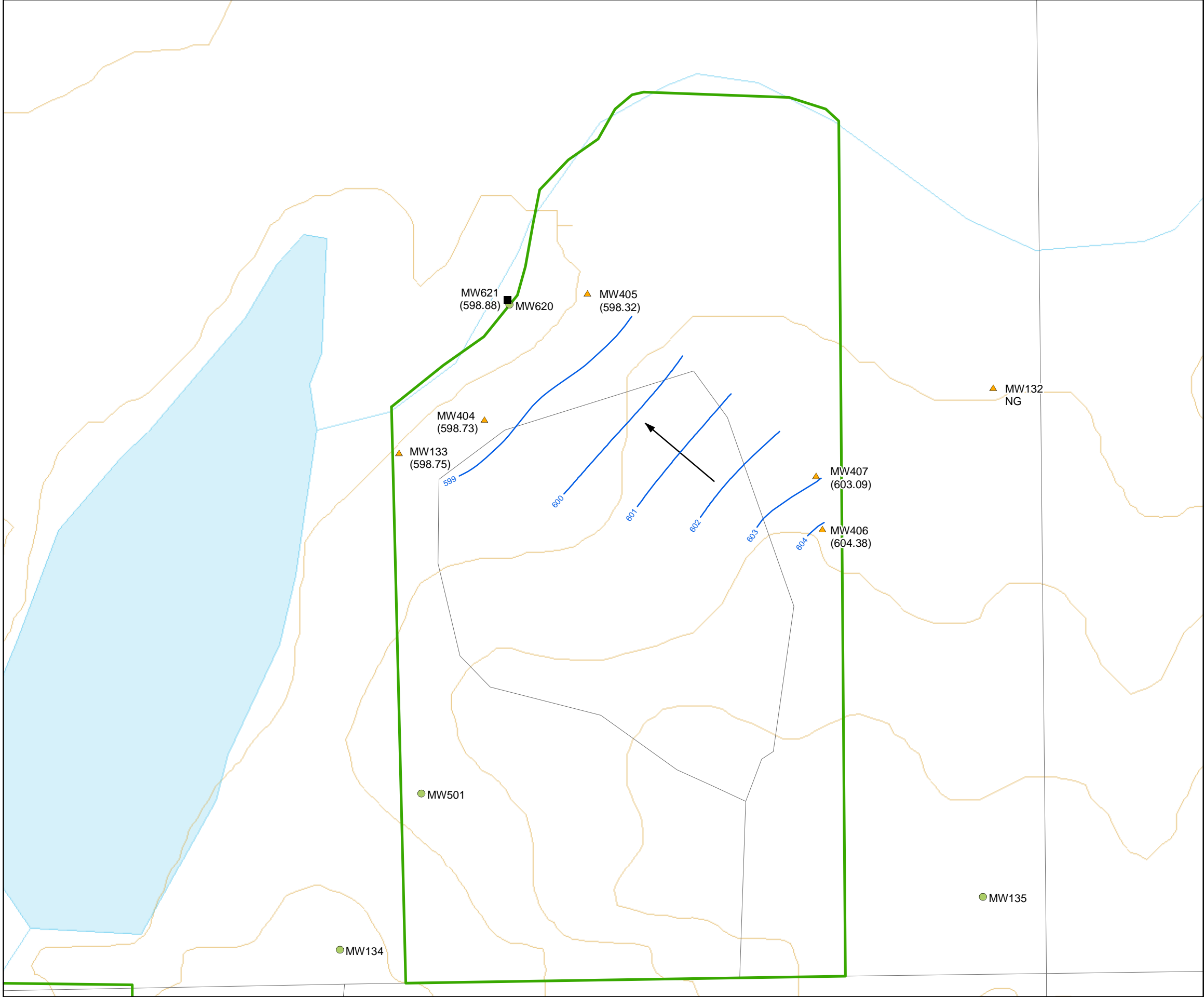
K:\11000\11600\11686\Fall 2007\DWG\ArcView\Figure 3-2-3 - Water Table Map - LAP Area Site L2 (October 2007).mxd

Figure 3.2.4  
Potentiometric Surface Map  
LAP Area, Site L2 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

Legend

- Bedrock Well Location and Number
- ▲ Combination Well Location and Number
- Overburden Well Location and Number
- Groundwater Management Zone (GMZ)
- Small Road
- Major Roads
- Railroads
- Streams
- Ground Elevation Contours (3 meter interval)
- Potentiometric Surface Contours (Feet AMSL)  
(based on combination wells only)
- Flow Direction
- Well Number  
Water Elevation (Feet AMSL)
- NG Not Gauged
- AMSL: Above Mean Sea Level



Projection UTM, Zone 16  
Horizontal Datum NAD83  
Units Feet

1:2,600  
0 0.025 0.05  
Kilometers  
0 0.025 0.05  
Miles





Figure 3.2.5  
Explosives Detections  
LAP Area, Site L2 (2007)  
  
Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

**Legend**

- Bedrock Well Location
- ▲ Combination Well Location
- Overburden Well Location
- ◆ Surface Water Location
- Groundwater Management Zone (GMZ)
- Ground Elevation Contours (3 meter interval)

**Well Type**

- IP In-Plume
- EW Early Warning
- CM Compliance

All results are in micrograms per liter (µg/L).  
/ = qualifiers after a slash were determined during data validation  
U = not detected at or above the listed method detection limit  
J = indicates an estimated value  
I = indicates chromatogram interference  
NS = not sampled  
5.1 = detection exceeds remedial goal

**Installation Location**

**Projection** UTM, Zone 16  
**Horizontal Datum** NAD83  
**Units** Feet  
**Scale** 1:2,600

0 0.025 0.05 Kilometers  
0 0.025 0.05 Miles

MW621	April '07	October '07
HMX	0.15 U	0.055 U
RDX	0.095 U	0.078 U
1,3,5-TNB	0.048 U	0.051 U
2,4,6-TNT	0.044 U	0.055 U
2,4-DNT	0.039 U	0.089 U
2,6-DNT	0.088 U	0.13 U
2a,4,6-DNT	0.043 U	0.087 U
4a,2,6-DNT	0.091 U	0.12 U

MW621-DUP	April '07	October '07
HMX	NS	0.051 U
RDX	NS	0.072 U
1,3,5-TNB	NS	0.048 U
2,4,6-TNT	NS	0.051 U
2,4-DNT	NS	0.083 U
2,6-DNT	NS	0.12 U
2a,4,6-DNT	NS	0.081 U
4a,2,6-DNT	NS	0.11 U

SW555	April '07	October '07
HMX	0.12 U	0.036 U
RDX	0.077 U	0.051 U
1,3,5-TNB	0.039 U	0.034 U
2,4,6-TNT	0.036 U	0.036 U
2,4-DNT	0.032 U	0.059 U
2,6-DNT	0.071 U	0.083 U
2a,4,6-DNT	0.035 U	0.058 U
4a,2,6-DNT	0.074 U	0.081 U

SW555-DUP	April '07	October '07
HMX	NS	0.029 U
RDX	NS	0.041 U
1,3,5-TNB	NS	0.027 U
2,4,6-TNT	NS	0.029 U
2,4-DNT	NS	0.047 U
2,6-DNT	NS	0.066 U
2a,4,6-DNT	NS	0.046 U
4a,2,6-DNT	NS	0.065 U

MW133	April '07	October '07
HMX	0.12 U	0.029 U
RDX	0.077 U	0.041 U
1,3,5-TNB	0.039 U	0.027 U
2,4,6-TNT	0.036 U	0.029 U
2,4-DNT	0.032 U	0.047 U
2,6-DNT	0.071 U	0.066 U
2a,4,6-DNT	0.035 U	0.046 U
4a,2,6-DNT	0.074 U	0.065 U

MW404	April '07	October '07
HMX	21	52
RDX	45	250
1,3,5-TNB	0.039 U	0.027 U
2,4,6-TNT	0.036 U	0.029 U
2,4-DNT	0.032 U	0.047 U
2,6-DNT	0.071 U	0.066 U
2a,4,6-DNT	0.035 U	0.046 U
4a,2,6-DNT	0.074 U	0.065 U

MW620	April '07	October '07
HMX	0.12 U	0.041 U
RDX	0.077 U	0.057 U
1,3,5-TNB	0.039 U	0.038 U
2,4,6-TNT	0.036 U	0.041 U
2,4-DNT	0.032 U	0.066 U
2,6-DNT	0.071 U	0.092 U
2a,4,6-DNT	0.035 U	0.064 U
4a,2,6-DNT	0.074 U	0.091 U

MW405	April '07	October '07
HMX	0.13 U	0.029 U
RDX	0.081 U	0.041 U
1,3,5-TNB	0.041 U	0.027 U
2,4,6-TNT	0.038 U	0.029 U
2,4-DNT	0.034 U	0.047 U
2,6-DNT	0.075 U	0.066 U
2a,4,6-DNT	0.037 U	0.046 U
4a,2,6-DNT	0.078 U	3.7 /JI

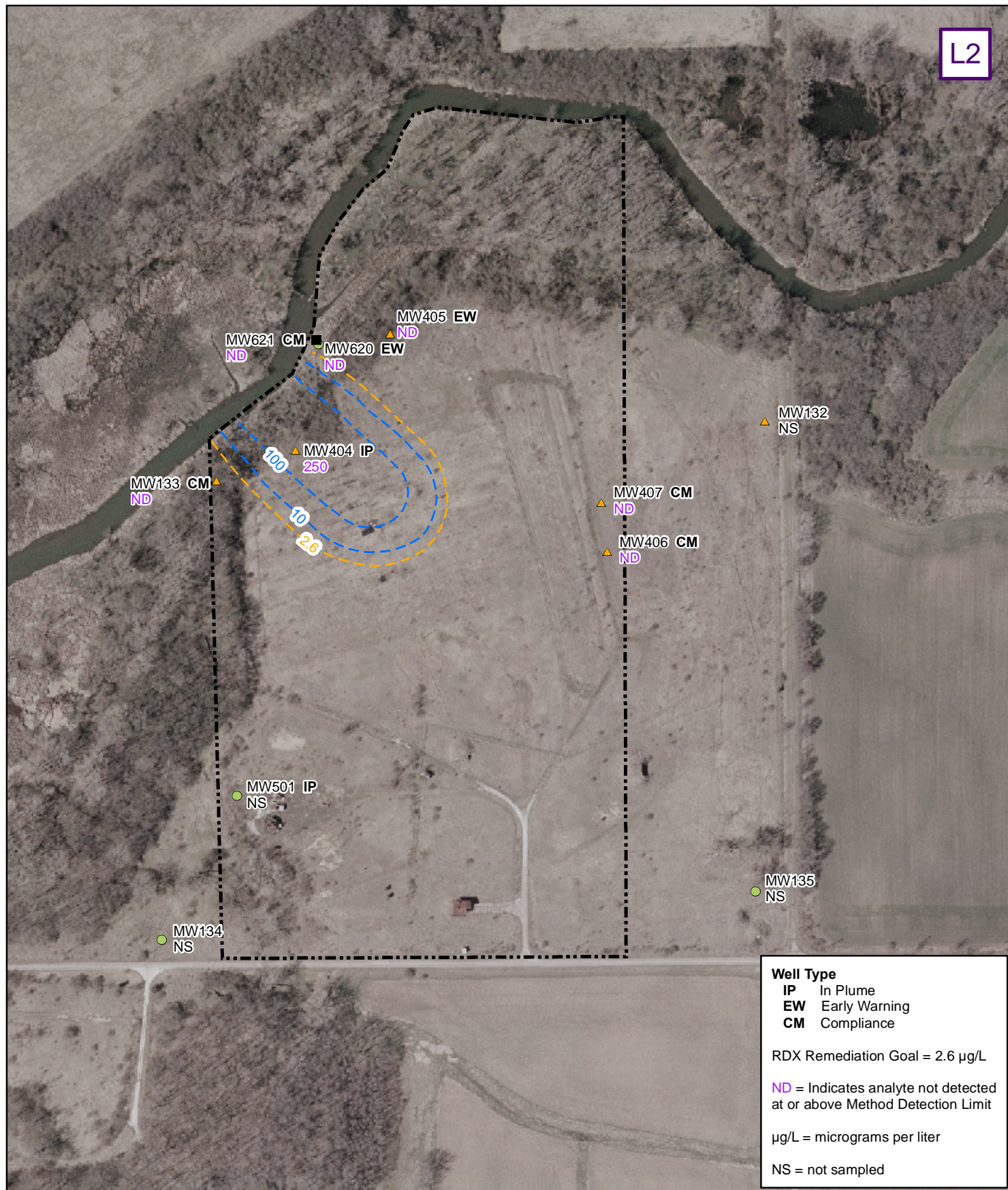
MW405-DUP	April '07	October '07
HMX	0.12 U	NS
RDX	0.077 U	NS
1,3,5-TNB	0.039 U	NS
2,4,6-TNT	0.036 U	NS
2,4-DNT	0.032 U	NS
2,6-DNT	0.071 U	NS
2a,4,6-DNT	0.035 U	NS
4a,2,6-DNT	0.074 U	NS

MW407	April '07	October '07
HMX	NS	0.029 U
RDX	NS	0.041 U
1,3,5-TNB	NS	0.027 U
2,4,6-TNT	NS	0.029 U
2,4-DNT	NS	0.047 U
2,6-DNT	NS	0.066 U
2a,4,6-DNT	NS	0.046 U
4a,2,6-DNT	NS	0.065 U

MW406	April '07	October '07
HMX	NS	0.029 U
RDX	NS	0.041 U
1,3,5-TNB	NS	0.027 U
2,4,6-TNT	NS	0.029 U
2,4-DNT	NS	0.047 U
2,6-DNT	NS	0.066 U
2a,4,6-DNT	NS	0.046 U
4a,2,6-DNT	NS	0.065 U



L2



- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - Remediation Goal Contour Line (µg/L) (inferred)
  - Concentration Contour Line (µg/L) (inferred)
  - - - Groundwater Management Zones



Projection UTM Zone 16  
 Horizontal Datum NAD83  
 Units Feet  
 1 inch equals 300 feet  
 0 300 Feet



**FIGURE D4**  
**AREA L2**  
**RDX Contours**  
**October 2007**

Joilet Army Ammunition Plant  
 Groundwater Operable Unit  
 Wilmington, Illinois

**SITE L3**



Figure 3.3.3  
Water Table Map  
LAP Area, Site L3 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

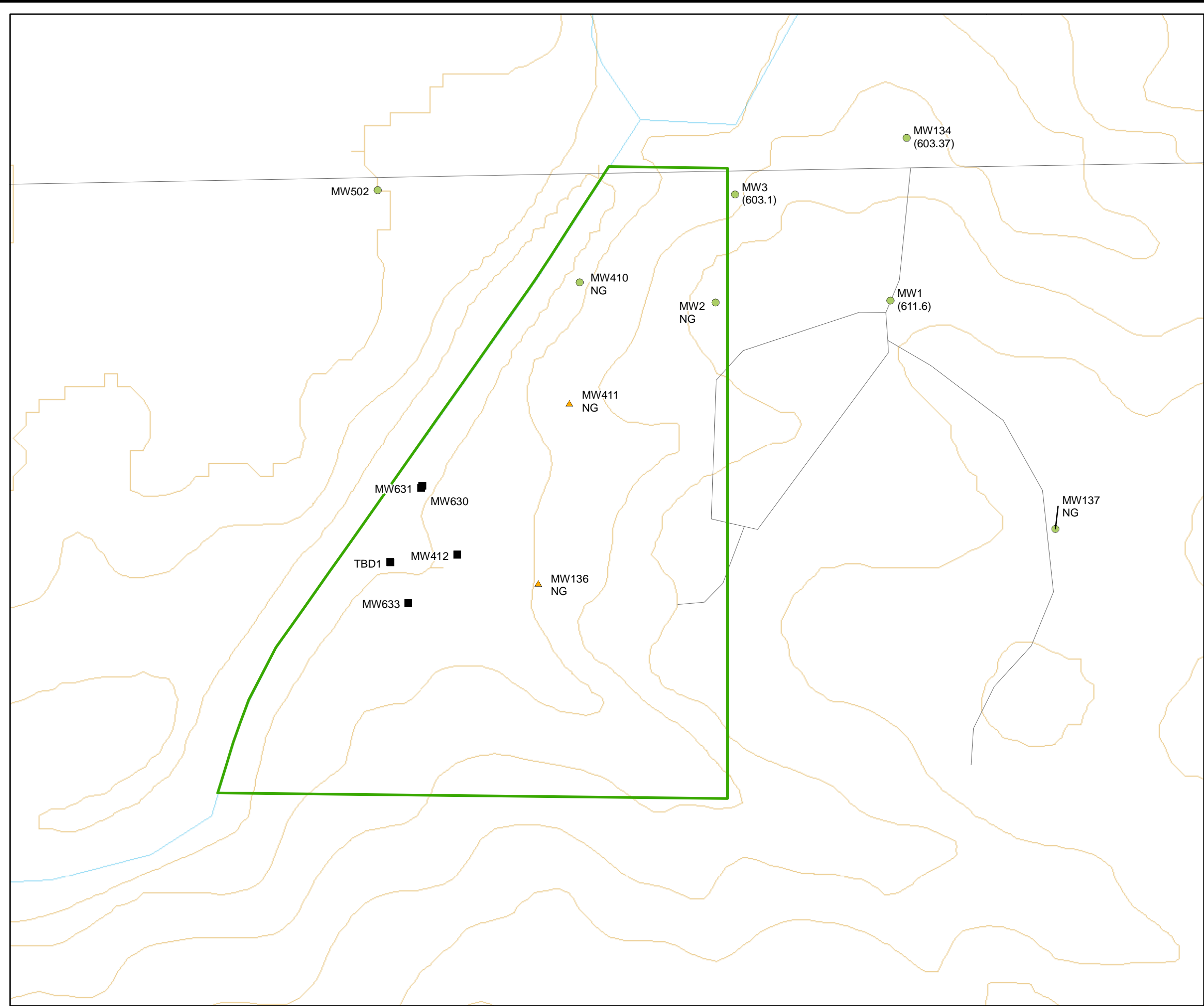
**Legend**

- Bedrock Well Location and Number
- ▲ Combination Well Location and Number
- Overburden Well Location and Number
- Groundwater Management Zone (GMZ)
- Small Road
- Major Roads
- Railroads
- Streams
- Ground Elevation Contours (3 meter interval)

Well Number  
Water Elevation (Feet AMSL)

NG Not Gauged

AMSL: Above Mean Sea Level

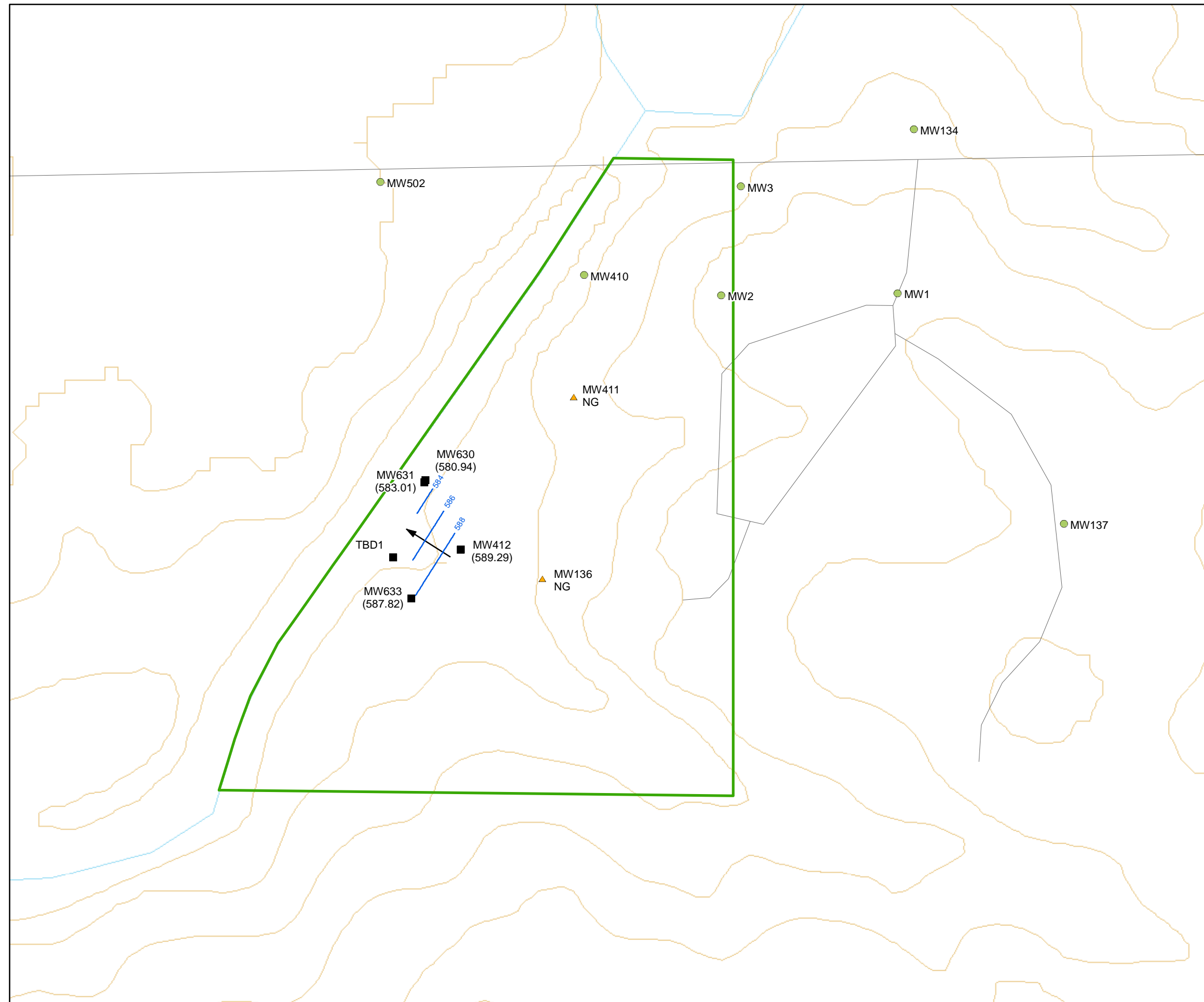


Installation Location

Projection UTM, Zone 16  
Horizontal Datum NAD83  
Units Feet  
Scale 1:3,000

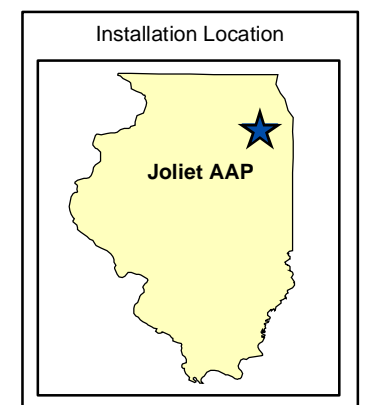
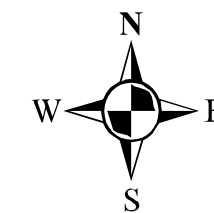
Figure 3.3.4  
Potentiometric Surface Map  
LAP Area, Site L3 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL



### Legend

- Bedrock Well Location and Number
  - ▲ Combination Well Location and Number
  - Overburden Well Location and Number
  - Groundwater Management Zone (GMZ)
  - Small Road
  - Major Roads
  - Railroads
  - Streams
  - Ground Elevation Contours (3 meter interval)
  - Potentiometric Surface Contours (Feet AMSL)
  - Flow Direction
- MW174  
(607.49)
- Well Number  
Water Elevation (Feet AMSL)
- NG Not Gauged
- AMSL: Above Mean Sea Level



Projection	UTM, Zone 16
Horizontal Datum	NAD83
Units	Feet

1:3,000

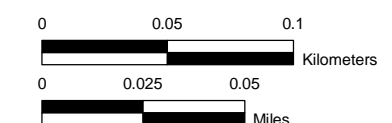




Figure 3.3.5  
Explosives Detections  
LAP Area, Site L3 (2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

Legend

- Bedrock Well Location
- ▲ Combination Well Location
- Overburden Well Location
- ◆ Surface Water Location
- Groundwater Management Zone (GMZ)
- Ground Elevation Contours (3 meter interval)

Well Type

- IP In-Plume
- EW Early Warning
- CM Compliance

All results are in micrograms per liter (µg/L).  
/ = qualifiers after a slash were determined during data validation

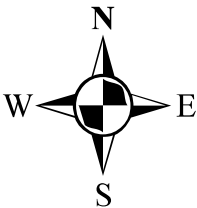
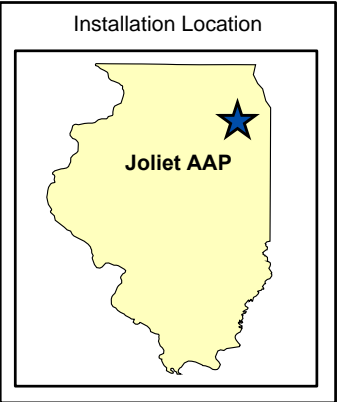
U = not detected at or above the listed method detection limit

J = indicates an estimated value

I = indicates chromatogram interference

NS = not sampled

5.1 = detection exceeds remedial goal

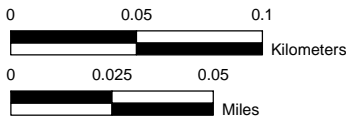


Projection UTM, Zone 16

Horizontal Datum NAD83

Units Feet

1:3,000



MW410	April '07	October '07
HMX	1.7	NS
RDX	5	NS
1,3,5-TNB	0.039 U	NS
2,4,6-TNT	0.036 U	NS
2,4-DNT	0.032 U	NS
2,6-DNT	0.071 U	NS
2a,4,6-DNT	0.035 U	NS
4a,2,6-DNT	0.074 U	NS

SW557	April '07	October '07
HMX	0.13 U	0.029 U
RDX	0.08 U	0.041 U
1,3,5-TNB	0.04 U	0.027 U
2,4,6-TNT	0.037 U	0.029 U
2,4-DNT	0.033 U	0.047 U
2,6-DNT	0.073 U	0.066 U
2a,4,6-DNT	0.036 U	0.046 U
4a,2,6-DNT	0.076 U	0.065 U

MW630	April '07	October '07
HMX	0.17 U	0.029 U
RDX	2 /JI	0.041 U
1,3,5-TNB	0.055 U	0.027 U
2,4,6-TNT	0.05 U	0.029 U
2,4-DNT	0.045 U	0.047 U
2,6-DNT	0.099 U	0.066 U
2a,4,6-DNT	0.049 U	0.046 U
4a,2,6-DNT	0.1 U	0.065 U

MW630-DUP	April '07	October '07
HMX	0.12 U	0.029 U
RDX	1.6 /JI	0.041 U
1,3,5-TNB	0.039 U	0.027 U
2,4,6-TNT	0.036 U	0.029 U
2,4-DNT	0.032 U	0.047 U
2,6-DNT	0.071 U	0.066 U
2a,4,6-DNT	0.035 U	0.046 U
4a,2,6-DNT	0.074 U	0.065 U

MW631	April '07	October '07
HMX	0.15 U	0.029 U
RDX	0.094 U	0.041 U
1,3,5-TNB	0.047 U	0.027 U
2,4,6-TNT	0.044 U	0.029 U
2,4-DNT	0.039 U	0.047 U
2,6-DNT	0.086 U	0.066 U
2a,4,6-DNT	0.043 U	0.046 U
4a,2,6-DNT	0.09 U	0.065 U

SW777	April '07	October '07
HMX	0.13 U	0.039 U
RDX	0.081 U	0.055 U
1,3,5-TNB	0.041 U	0.036 U
2,4,6-TNT	0.038 U	0.039 U
2,4-DNT	0.034 U	0.063 U
2,6-DNT	0.075 U	0.088 U
2a,4,6-DNT	0.037 U	0.061 U
4a,2,6-DNT	0.078 U	0.087 U

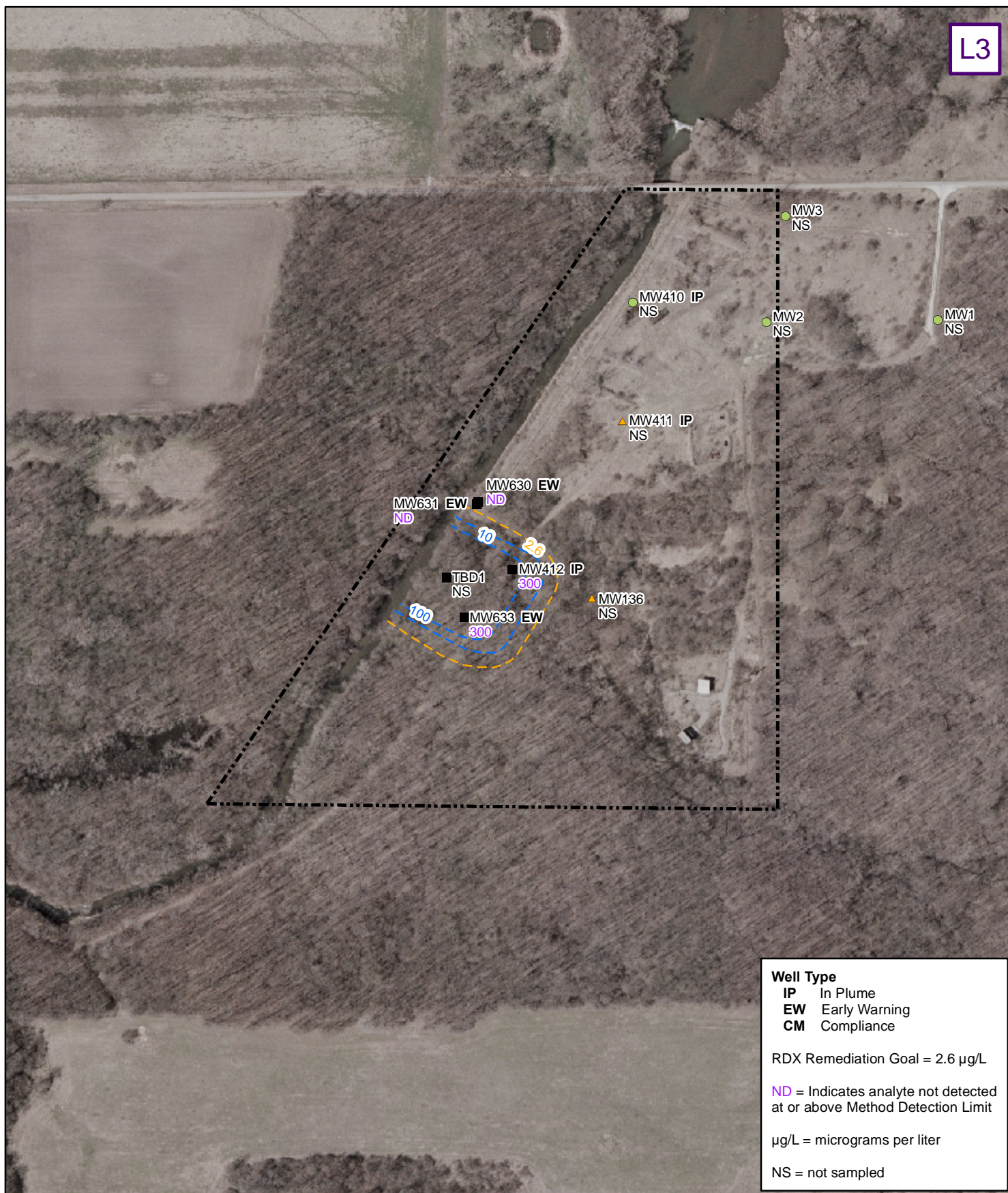
MW633	April '07	October '07
HMX	1.7	35
RDX	5.1	300
1,3,5-TNB	0.039 U	0.028 U
2,4,6-TNT	0.036 U	0.03 U
2,4-DNT	0.032 U	0.049 U
2,6-DNT	0.071 U	0.068 U
2a,4,6-DNT	0.035 U	1.1
4a,2,6-DNT	0.074 U	1.8

MW412	April '07	October '07
HMX	1.8	39
RDX	5.7	300
1,3,5-TNB	0.039 U	0.027 U
2,4,6-TNT	0.036 U	0.029 U
2,4-DNT	0.032 U	0.047 U
2,6-DNT	0.071 U	0.066 U
2a,4,6-DNT	0.035 U	1
4a,2,6-DNT	0.074 U	1.8

SW558	April '07	October '07
HMX	0.12 U	0.037 U
RDX	0.077 U	0.052 U
1,3,5-TNB	0.039 U	0.034 U
2,4,6-TNT	0.036 U	0.037 U
2,4-DNT	0.032 U	0.06 U
2,6-DNT	0.071 U	0.084 U
2a,4,6-DNT	0.035 U	0.058 U
4a,2,6-DNT	0.074 U	0.082 U



L3



Prepared by  
AMEC for



#### Legend

- Bedrock Monitoring Well
- ▲ Combination Monitoring Well
- Overburden Monitoring Well
- 3.3 Concentration in (µg/L)
- Remediation Goal Contour Line (µg/L) (inferred)
- Concentration Contour Line (µg/L) (inferred)
- - - Groundwater Management Zones



Projection UTM Zone 16

Horizontal Datum NAD83

Units Feet

1 inch equals 327.674038 feet

0 300  
Feet



#### FIGURE D5 AREA L3 RDX Contours October 2007

Joilet Army Ammunition Plant  
Groundwater Operable Unit  
Wilmington, Illinois

**SITE L14**



Figure 3.4.3  
Water Table Map  
LAP Area, Site L14 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

- Legend**
- Bedrock Well Location and Number
  - ▲ Combination Well Location and Number
  - Overburden Well Location and Number
  - Groundwater Management Zone (GMZ)
  - Small Road
  - Major Roads
  - Railroads
  - Streams
  - Ground Elevation Contours (3 meter interval)
  - Water Table Contours (Feet AMSL)
  - Flow Direction
  - Well Number
  - Water Elevation (Feet AMSL)
  - NG Not Gauged
  - AMSL: Above Mean Sea Level

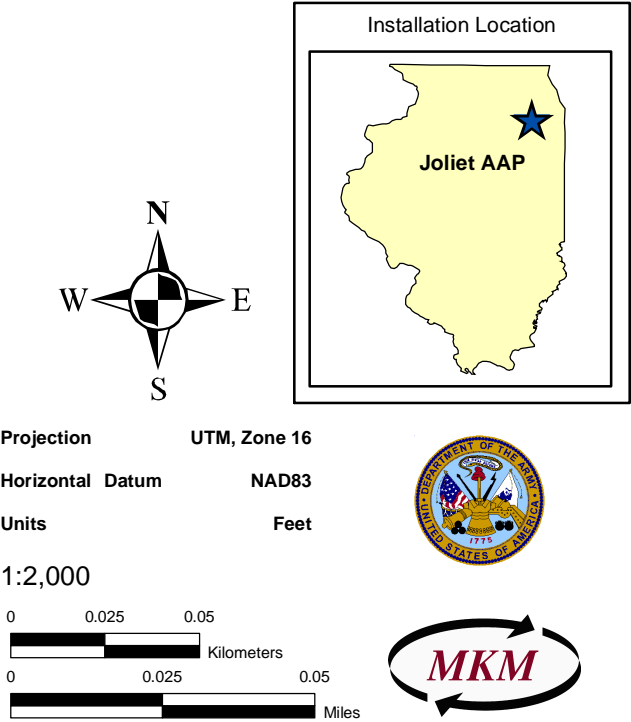
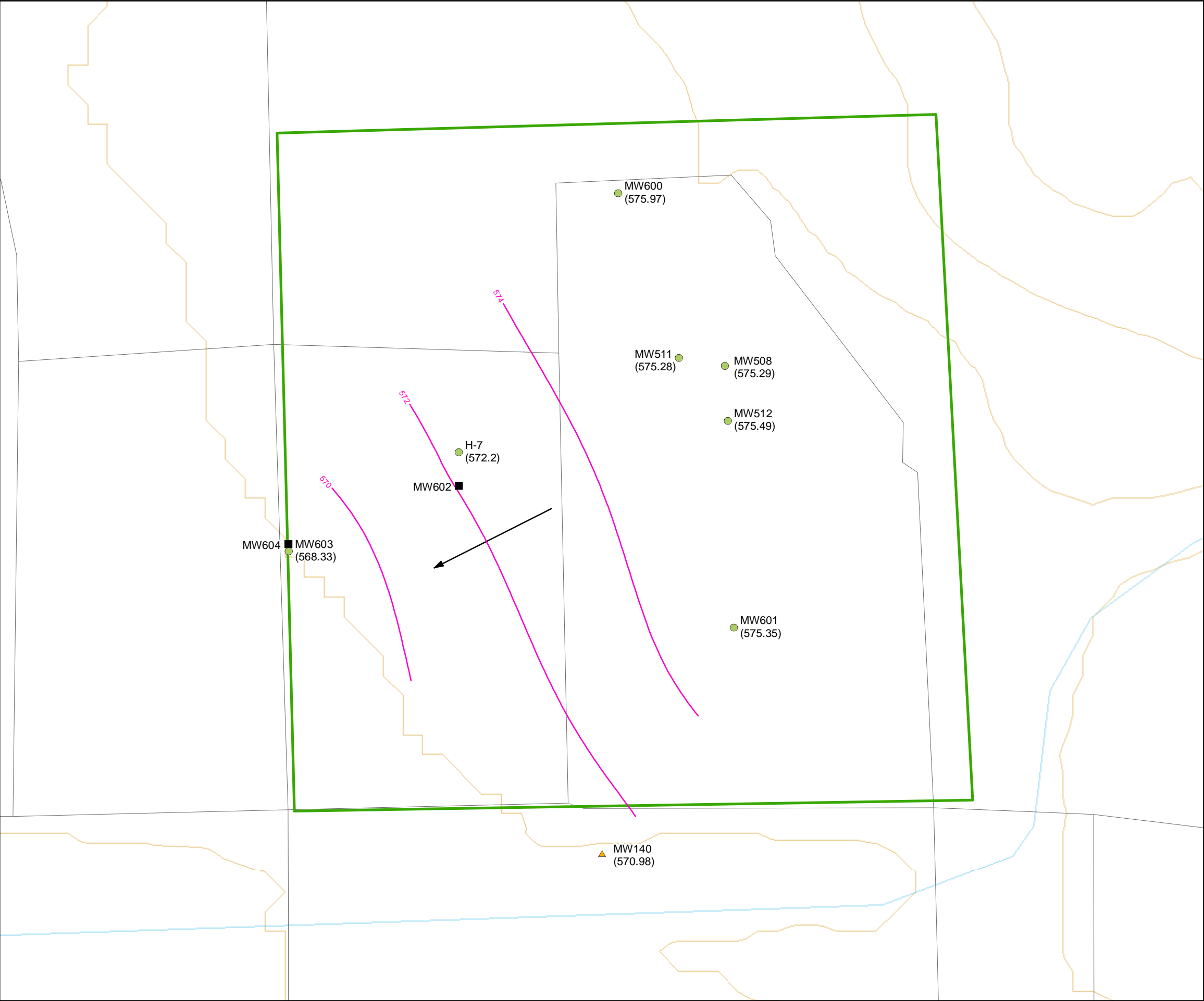
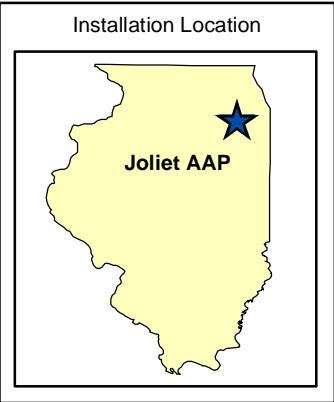
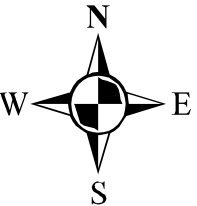
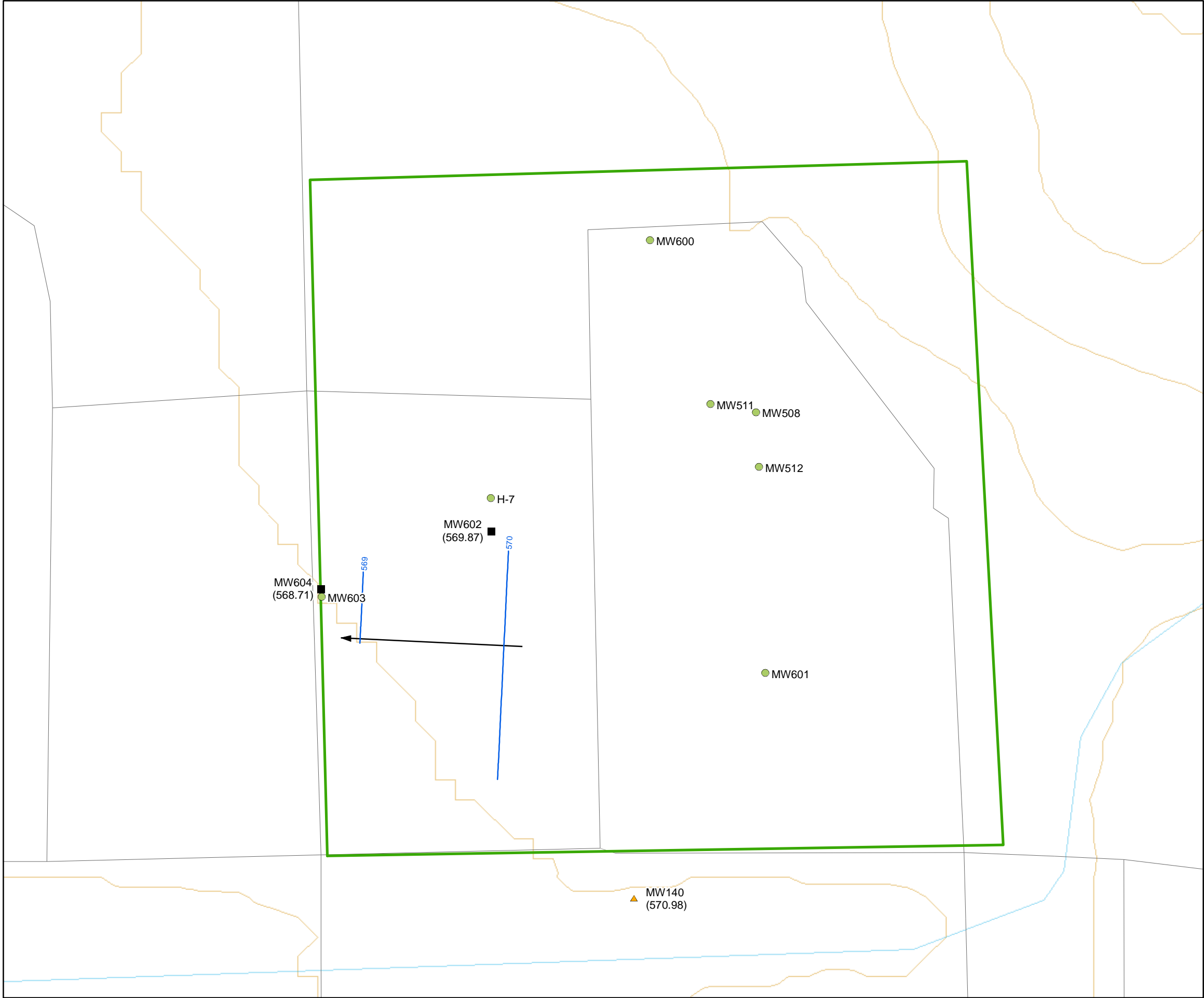


Figure 3.4.4  
Potentiometric Surface Map  
LAP Area, Site L14 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

Legend

- Bedrock Well Location and Number
- ▲ Combination Well Location and Number
- Overburden Well Location and Number
- Groundwater Management Zone (GMZ)
- Small Road
- Major Roads
- Railroads
- Streams
- Ground Elevation Contours (3 meter interval)
- Potentiometric Surface Contours (Feet AMSL)
- Flow Direction
- Well Number
- Water Elevation (Feet AMSL)
- NG Not Gauged
- AMSL: Above Mean Sea Level



Projection UTM, Zone 16  
Horizontal Datum NAD83  
Units Feet

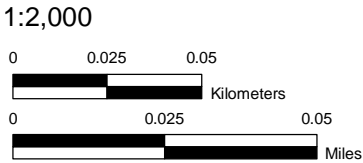




Figure 3.4.5  
Explosives Detections  
LAP Area, Site L14 (2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

Legend

- Bedrock Well Location
- ▲ Combination Well Location
- Overburden Well Location
- ◆ Surface Water Location
- Groundwater Management Zone (GMZ)
- Ground Elevation Contours (3 meter interval)

Well Type

- IP In-Plume
- EW Early Warning
- CM Compliance

All results are in micrograms per liter (µg/L).  
/ = qualifiers after a slash were determined during data validation

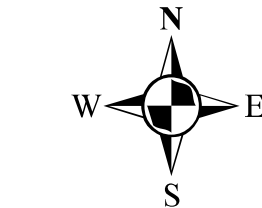
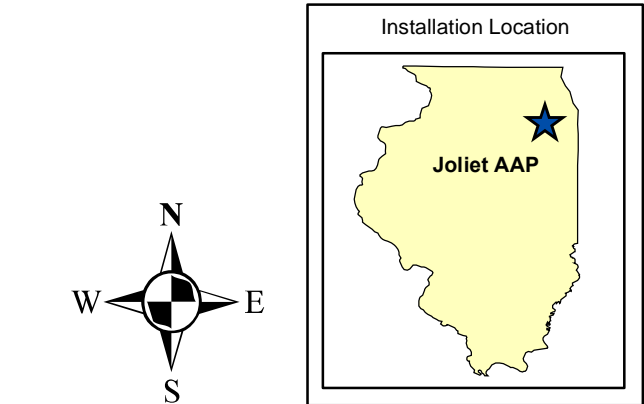
U = not detected at or above the listed method detection limit

J = indicates an estimated value

I = indicates chromatogram interference

NS = not sampled

5.1 = detection exceeds remedial goal

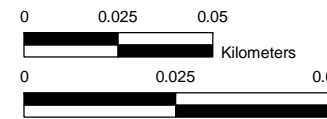


Projection UTM, Zone 16

Horizontal Datum NAD83

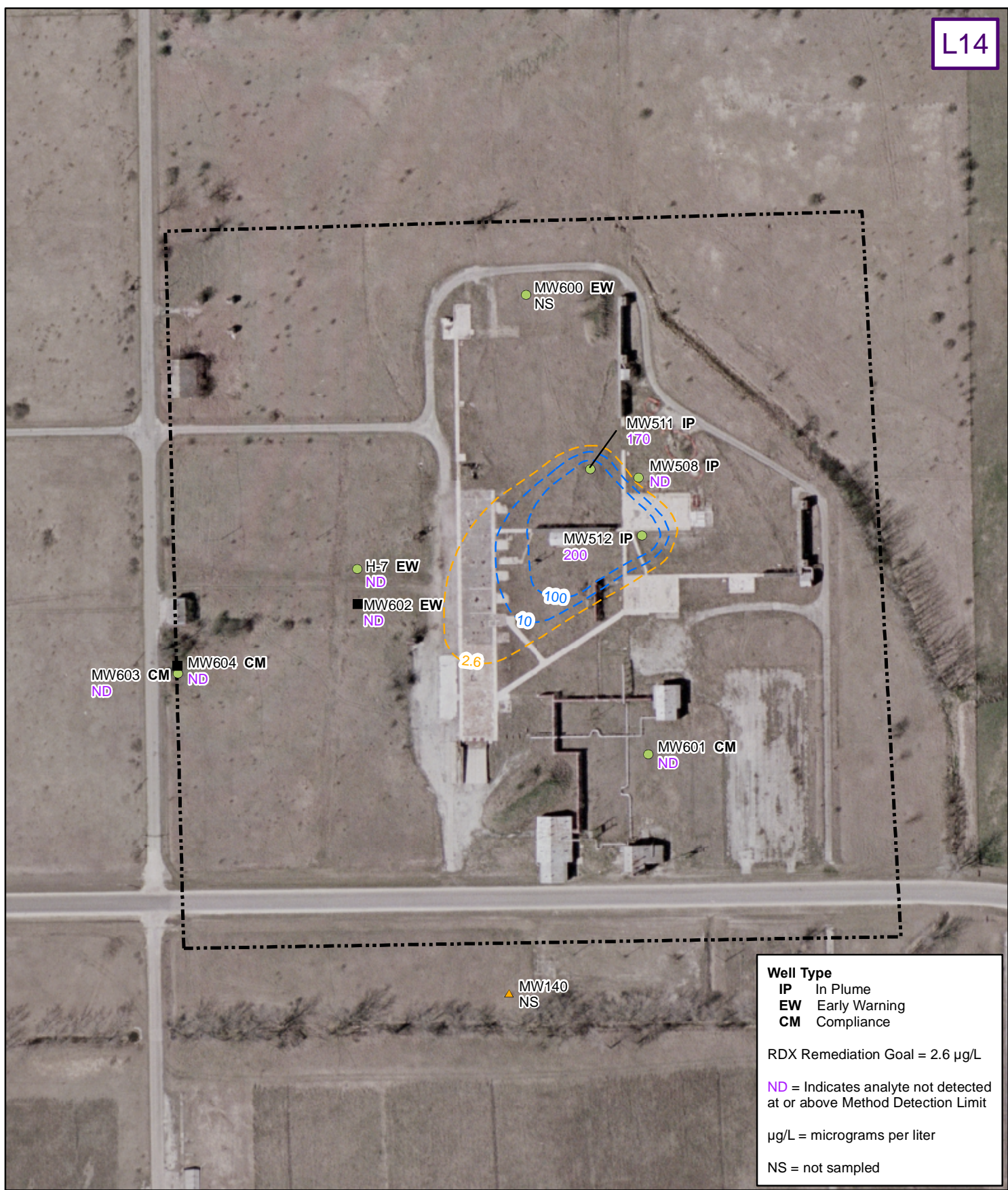
Units Feet

1:2,000



Aerial photo source: USGS High Resolution Orthoimagery, 2005





**Well Type**  
IP In Plume  
EW Early Warning  
CM Compliance

RDX Remediation Goal = 2.6 µg/L

ND = Indicates analyte not detected at or above Method Detection Limit

µg/L = micrograms per liter

NS = not sampled



- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - - - Remediation Goal Contour Line (µg/L) (inferred)
  - - - Concentration Contour Line (µg/L) (inferred)
  - - - Groundwater Management Zones



Projection UTM Zone 16  
Horizontal Datum NAD83  
Units Feet  
1 inch equals 200 feet  
0 200 Feet



**FIGURE D6**  
**AREA L14**  
**RDX Contours**  
**October 2007**  
Joilet Army Ammunition Plant  
Groundwater Operable Unit  
Wilmington, Illinois

**GRU 2**

**SITES M1, M5, M6, M7, M8, M13**



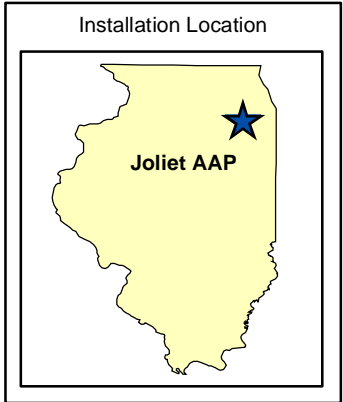
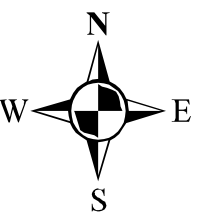
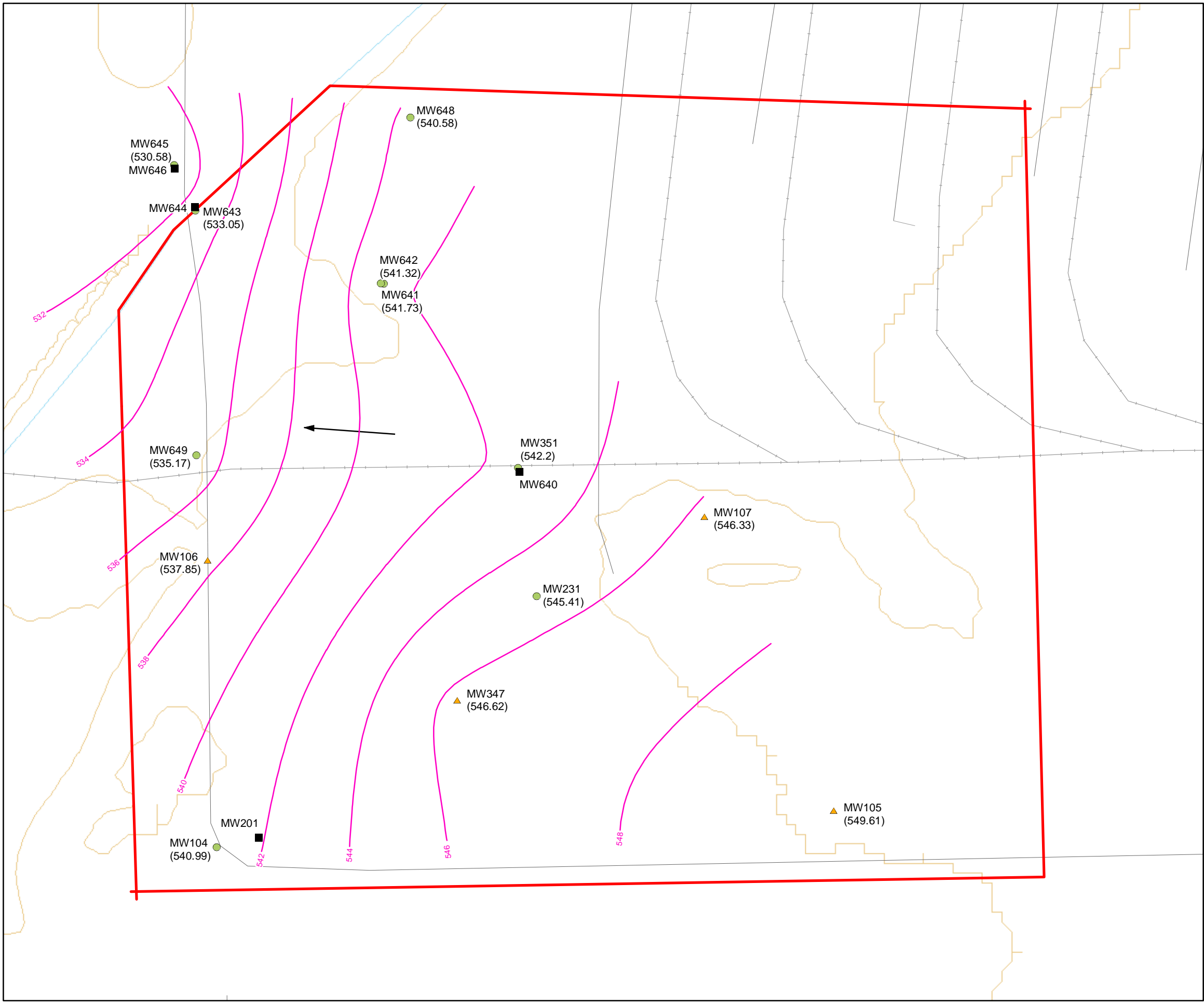
**SITE M1**

Figure 3.5.3  
Water Table Map  
MFG Area, Site M1 (October 2006)

Groundwater Monitoring  
Annual Report - Fall 2006  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

Legend

- Bedrock Well Location and Number
- ▲ Combination Well Location and Number
- Overburden Well Location and Number
- Groundwater Management Zone (GMZ)
- Small Road
- Major Roads
- Railroads
- Streams
- Ground Elevation Contours (3 meter interval)
- Water Table Contours (Feet AMSL)
- Flow Direction
- Well Number
- Water Elevation (Feet AMSL)
- NG Not Gauged
- AMSL: Above Mean Sea Level



Projection UTM, Zone 16  
Horizontal Datum NAD83  
Units Feet  
1:4,000

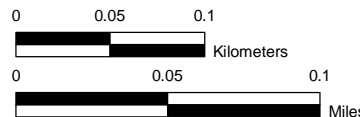
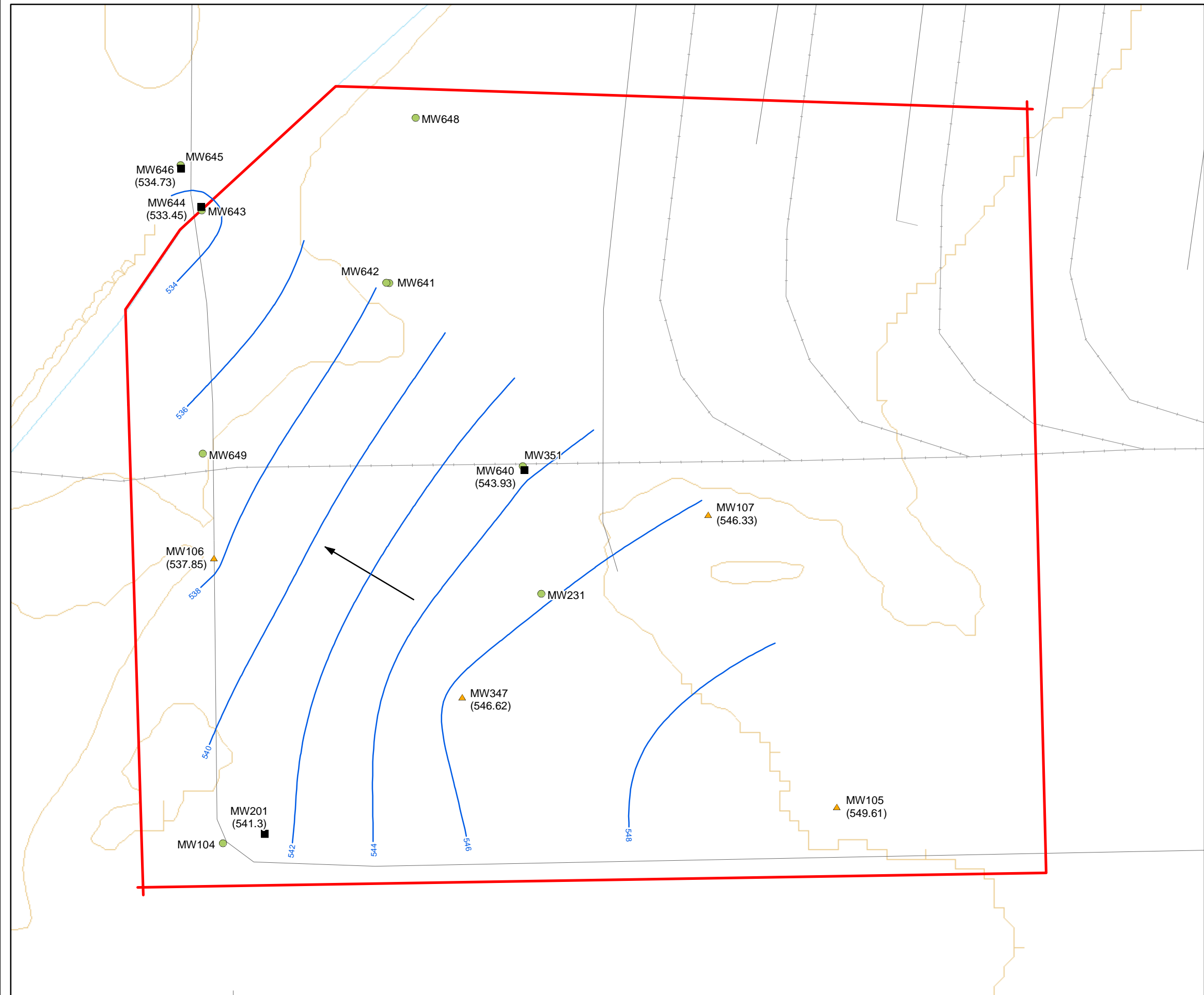


Figure 3.5.4  
Potentiometric Surface Map  
MFG Area, Site M1 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL



- Legend**
- Bedrock Well Location and Number
  - ▲ Combination Well Location and Number
  - Overburden Well Location and Number
  - Groundwater Management Zone (Manufacturing Side)
  - Small Road
  - Major Roads
  - Railroads
  - Streams
  - Ground Elevation Contours (3 meter interval)
  - Potentiometric Surface Contours (Feet AMSL)
  - Flow Direction
- MW174 (607.49) Well Number  
Water Elevation (Feet AMSL)
- NG Not Gauged
- AMSL: Above Mean Sea Level

Installation Location

Projection UTM, Zone 16  
Horizontal Datum NAD83  
Units Feet  
1:4,000



Figure 3.5.5  
Sulfate Detections  
MFG Area, Site M1 (2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

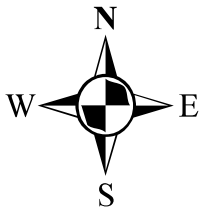
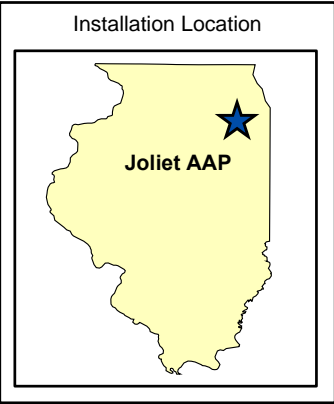
Legend

- Bedrock Well Location
- ▲ Combination Well Location
- Overburden Well Location
- ◆ Surface Water Location
- Groundwater Management Zone (Manufacturing Side)
- Ground Elevation Contours (3 meter interval)

Well Type

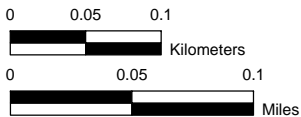
- IP In-Plume
- EW Early Warning
- CM Compliance

All results are in micrograms per liter (µg/L).  
/ = qualifiers after a slash were determined during data validation  
B = analyte detected in laboratory blank  
NS = not sampled  
5.1 = detection exceeds RG



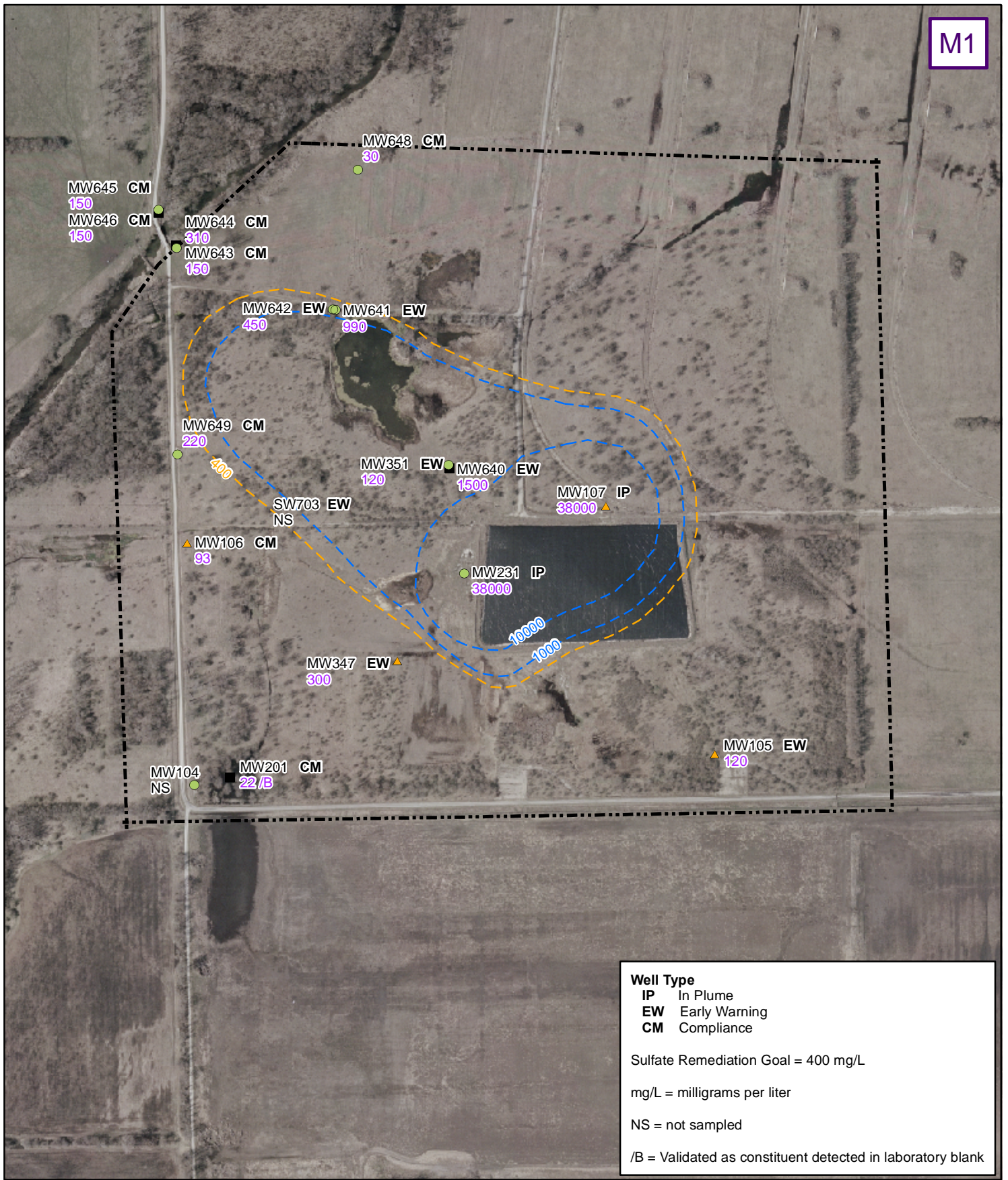
Projection UTM, Zone 16  
Horizontal Datum NAD83  
Units Feet

1:5,000





M1



- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - - - Remediation Goal Contour Line (mg/L) (inferred)
  - - - Concentration Contour Line (mg/L) (inferred)
  - - - Groundwater Management Zones



Projection UTM Zone 16  
 Horizontal Datum NAD83  
 Units Feet  
 1 inch equals 500 feet  
 0 500 Feet



**FIGURE D7**  
**AREA M1**  
**Sulfate Contours**  
**October 2007**

Joilet Army Ammunition Plant  
 Groundwater Operable Unit  
 Wilmington, Illinois

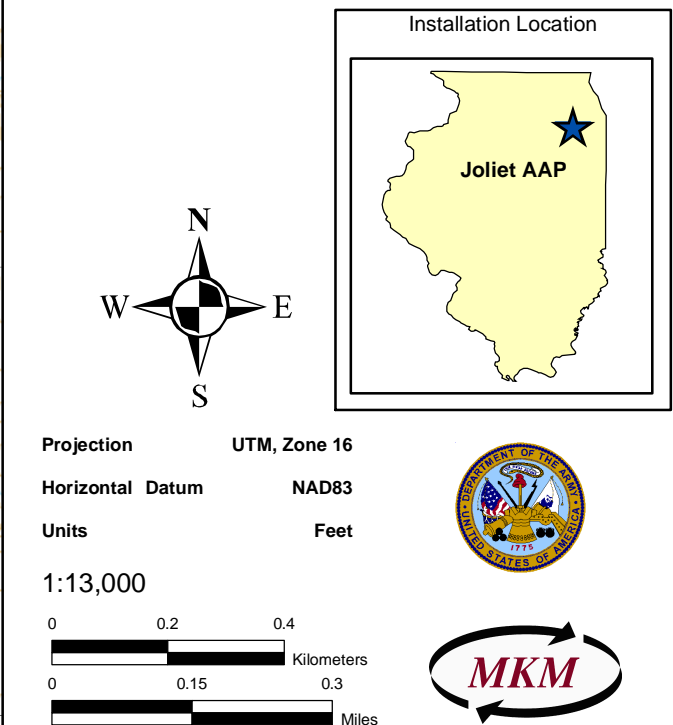
**SITES M5, M6, M7, M8, M13**



Figure 3.6.12  
Water Table Map  
MFG Area Sites  
M5, M6, M7, M8, and M13  
(October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

- Legend**
- Bedrock Well Location and Number
  - ▲ Combination Well Location and Number
  - Overburden Well Location and Number
  - Groundwater Management Zone (GMZ)
  - Groundwater Study Areas
  - Small Road
  - Major Roads
  - Railroads
  - Streams
  - Ground Elevation Contours (3 meter interval)
  - Water Table Contours (Feet AMSL)
  - ➔ Flow Direction
- Well Number  
Water Elevation (Feet AMSL)
- NG Not Gauged
- AMSL: Above Mean Sea Level



K:\11000\11600\11686\Fall 2007\DWG\ArcView\Figure 3-6-12 - Water Table Map - Manufacturing Area Sites M5, M6, M7, M8, and M13 (October 2007).mxd

Figure 3.6.13  
Bedrock Potentiometric  
Surface Map - MFG  
Area Sites M5, M6, M7, M8,  
and M13 (October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

- Legend**
- Bedrock Well Location and Number
  - ▲ Combination Well Location and Number
  - Overburden Well Location and Number
  - Groundwater Management Zone (GMZ)
  - Groundwater Study Areas
  - Small Road
  - Major Roads
  - Railroads
  - Streams
  - Ground Elevation Contours (3 meter interval)
  - Potentiometric Surface Contours (Feet AMSL)
  - Flow Direction
- Well Number  
Water Elevation (Feet AMSL)
- NG Not Gauged
- AMSL: Above Mean Sea Level

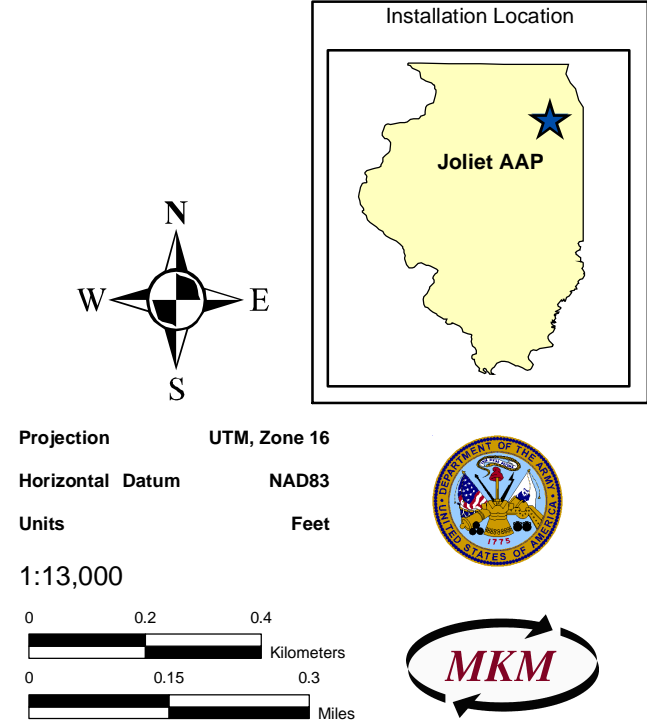




Figure 3.6.14  
Explosives and VOC Detections  
Manufacturing Area Sites  
M5, M6, M7, M8, and M13  
(May 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

#### Legend

- Bedrock Well Location
- ▲ Combination Well Location
- Overburden Well Location
- ◆ Surface Water Location
- Groundwater Management Zones (Manufacturing Side)
- Groundwater Study Areas
- Ground Elevation Contours (3 meter interval)

#### Well Type

- IP In-Plume
- EW Early Warning
- CM Compliance

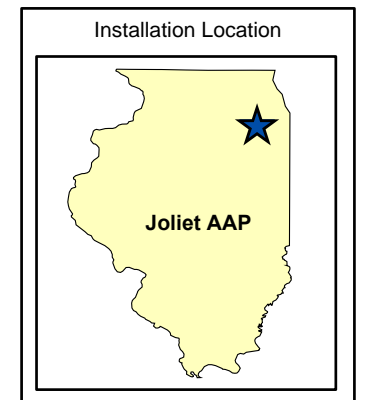
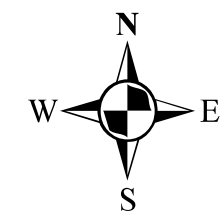
All results are in micrograms per liter (µg/L).  
/ = qualifiers after a slash were determined during data validation

J = indicates an estimated value

I = indicates chromatogram interference

NS = not sampled

5.1 = detection exceeds remedial goal



Projection UTM, Zone 16

Horizontal Datum NAD83

Units Feet

1:18,000

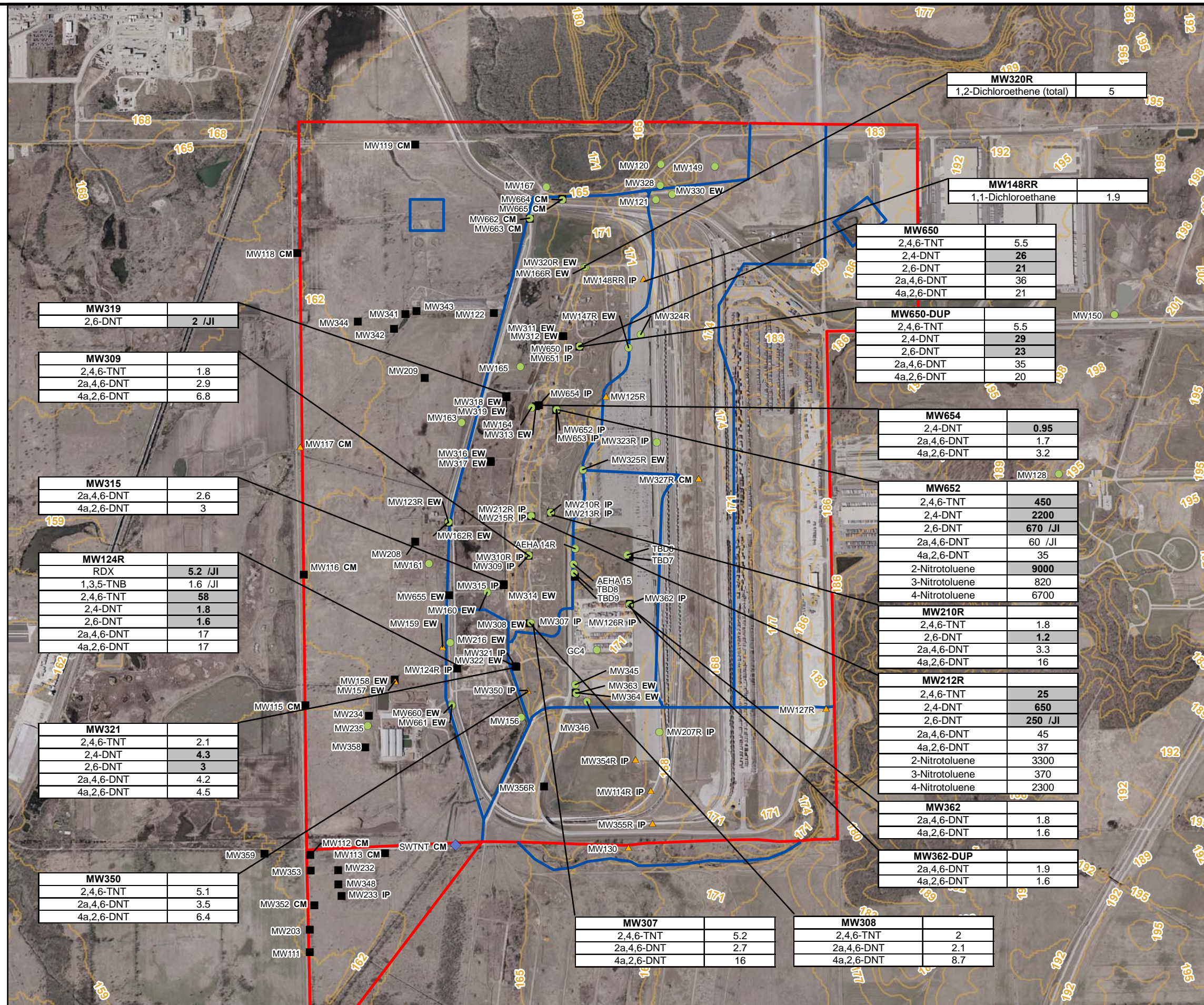
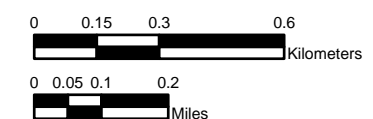




Figure 3.6.15  
Explosives and VOC Detections  
Manufacturing Area Sites  
M5, M6, M7, M8, and M13  
(October 2007)

Groundwater Monitoring  
Annual Report - Fall 2007  
Groundwater Operable Unit  
Joliet Army Ammunition Plant  
Wilmington, IL

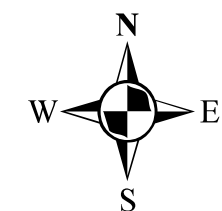
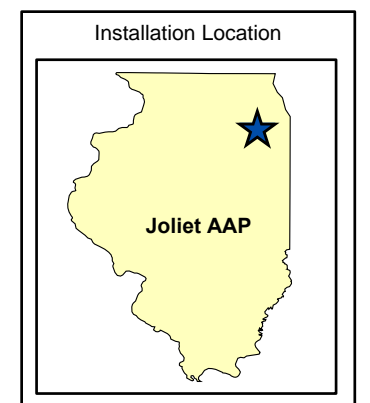
#### Legend

- Bedrock Well Location
- ▲ Combination Well Location
- Overburden Well Location
- ◆ Surface Water Location
- Groundwater Management Zones (Manufacturing Side)
- Groundwater Study Areas
- Ground Elevation Contours (3 meter interval)

#### Well Type

- IP In-Plume
- EW Early Warning
- CM Compliance

All results are in micrograms per liter (µg/L).  
/ = qualifiers after a slash were determined during data validation  
J = indicates an estimated value  
I = indicates chromatogram interference  
NS = not sampled  
5.1 = detection exceeds remedial goal

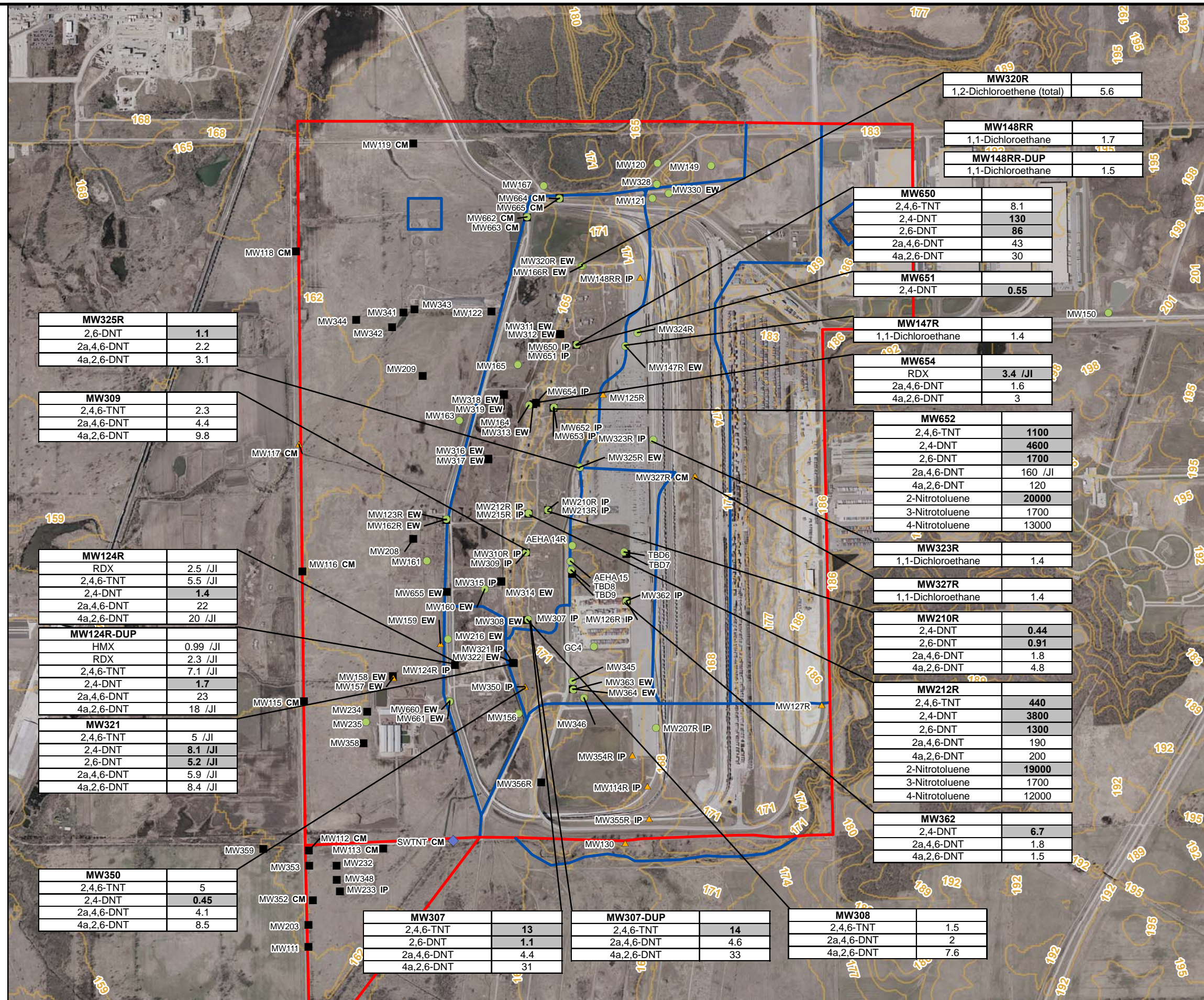
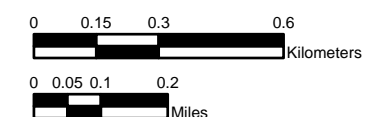


Projection UTM, Zone 16

Horizontal Datum NAD83

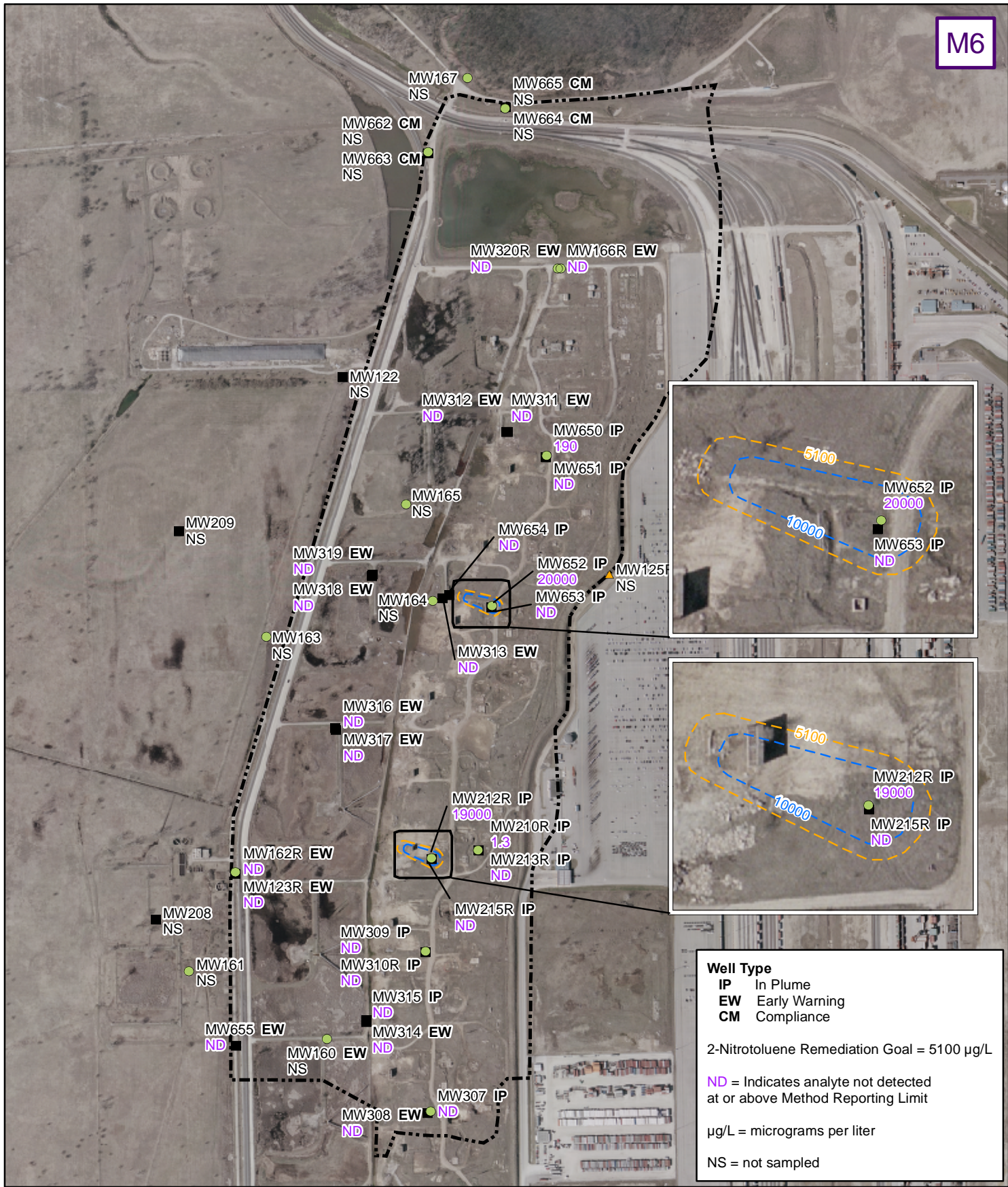
Units Feet

1:18,000



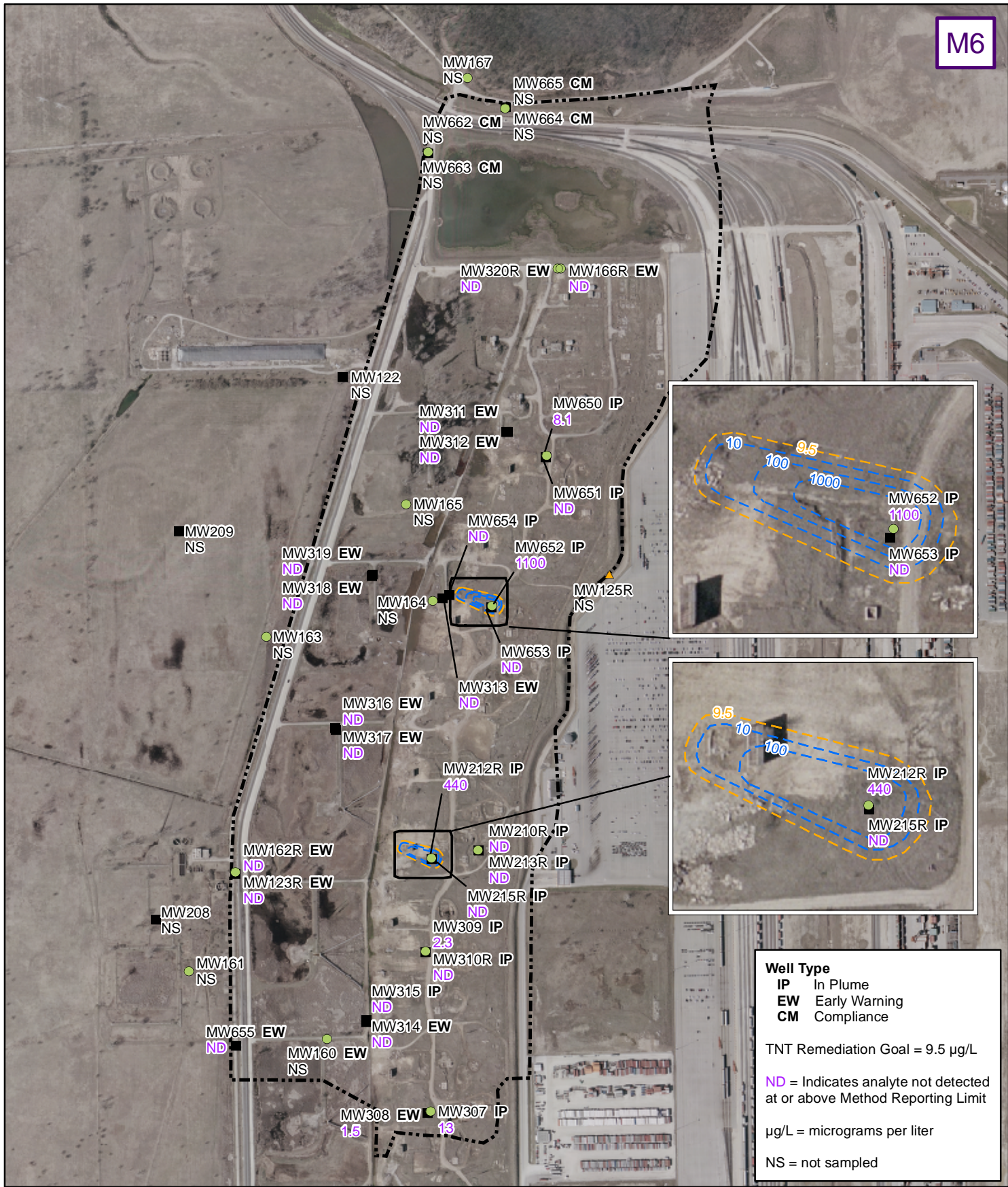


M6





M6



- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - Remediation Goal Contour Line (µg/L) (inferred)
  - Concentration Contour Line (µg/L) (inferred)
  - Groundwater Management Zones



Projection UTM Zone 16

Horizontal Datum NAD83

Units Feet

1 inch equals 800 feet

0 800

1 inch equals 150 feet in detail maps

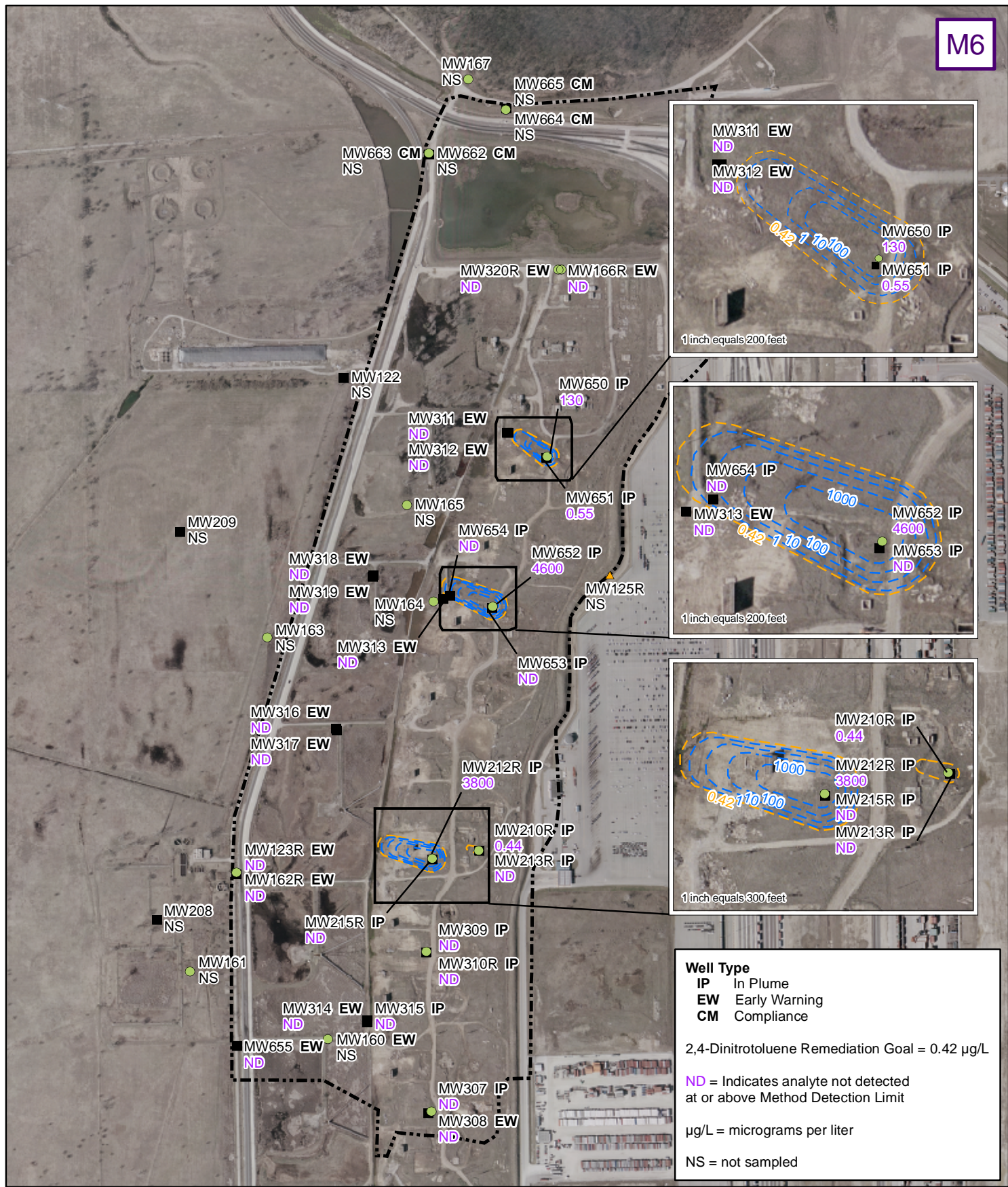


**FIGURE D9**  
**AREA M6**  
**TNT Contours**  
**October 2007**

Joilet Army Ammunition Plant  
 Groundwater Operable Unit  
 Wilmington, Illinois

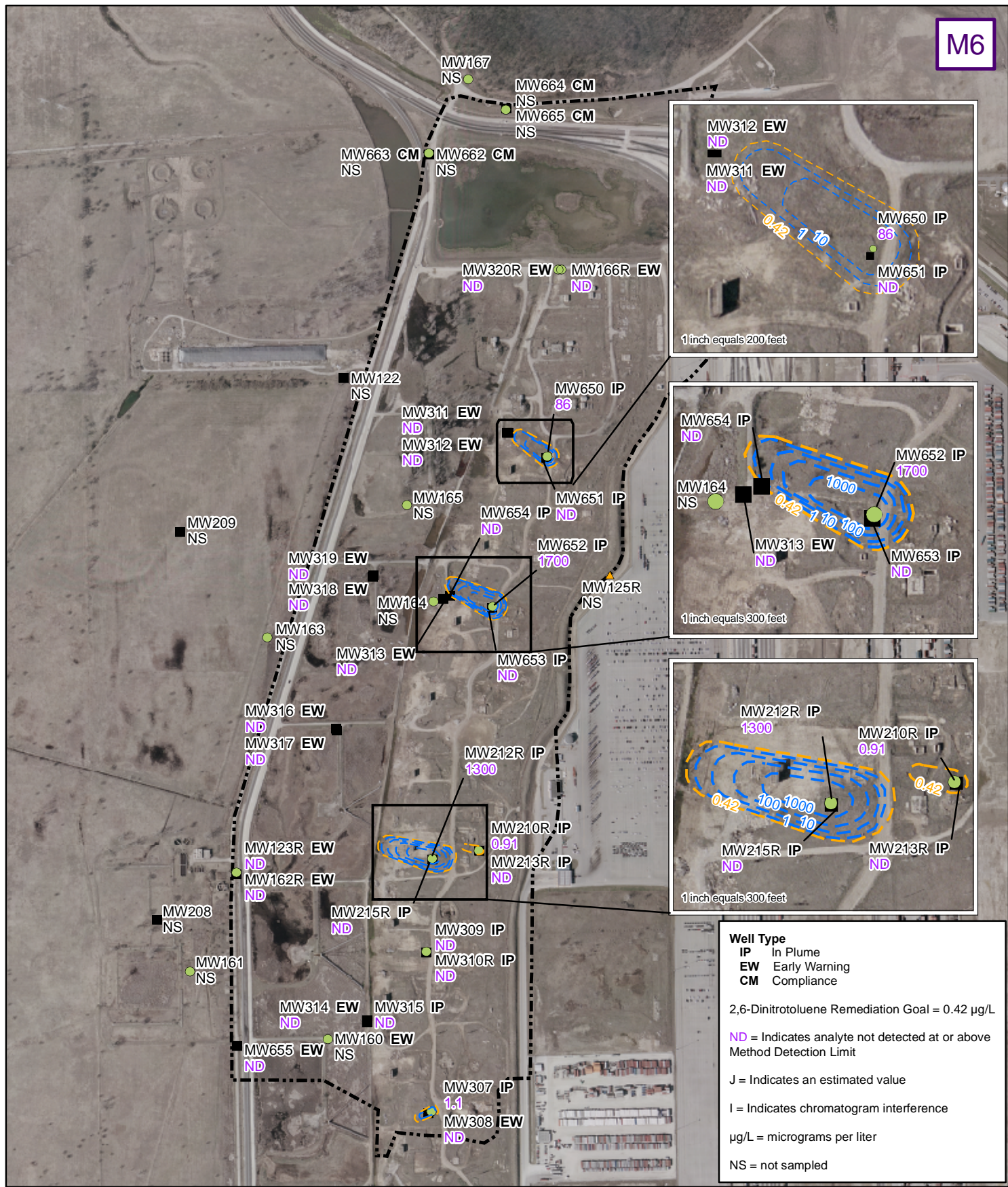


M6



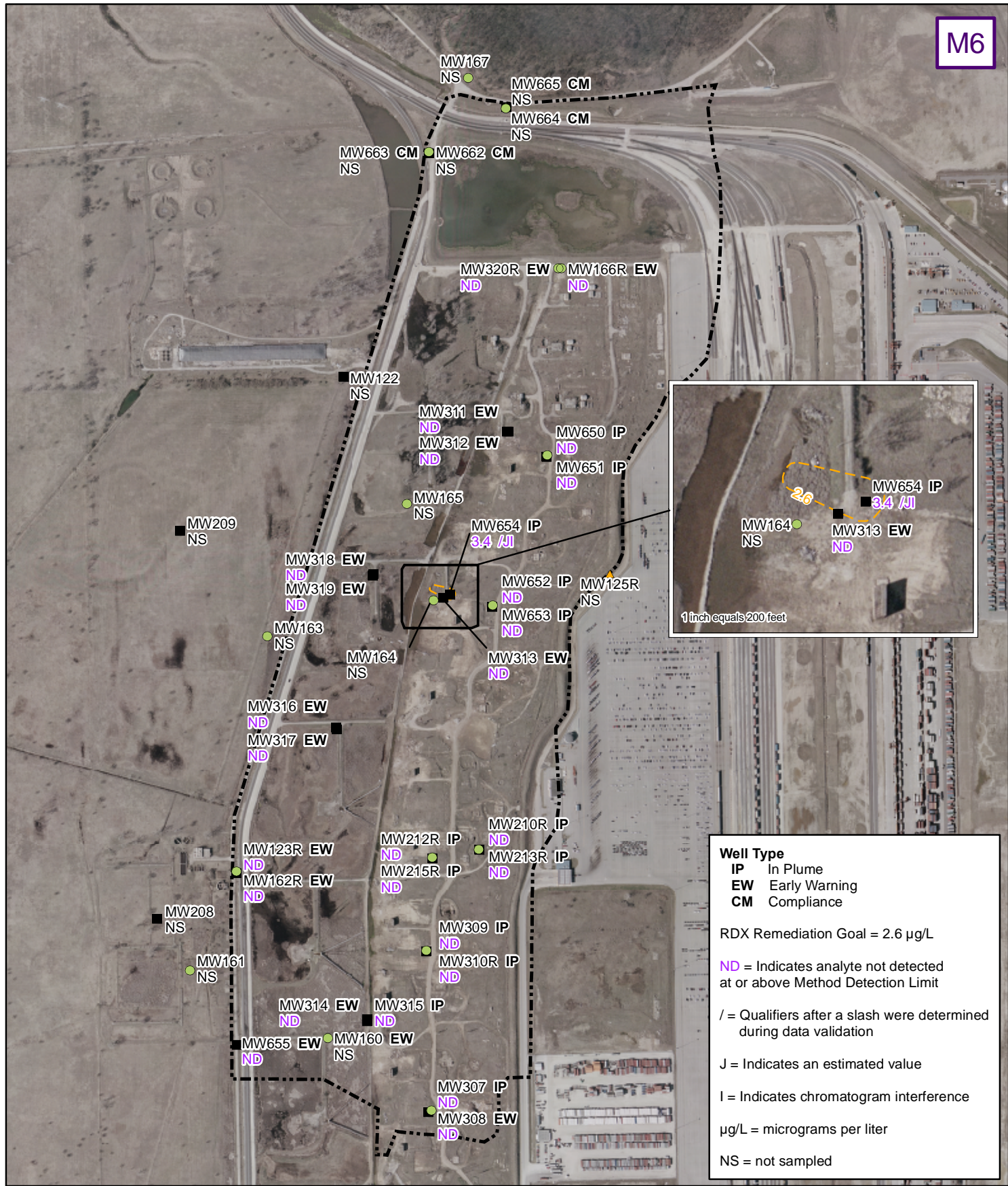


M6





M6



- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - Remediation Goal Contour Line (µg/L) (inferred)
  - Concentration Contour Line (µg/L) (inferred)
  - Groundwater Management Zones



Projection UTM Zone 16  
 Horizontal Datum NAD83  
 Units Feet  
 1 inch equals 800 feet  
 0 800 Feet



**FIGURE D12**  
**AREA M6**  
**RDX Contours**  
**October 2007**  
 Joilet Army Ammunition Plant  
 Groundwater Operable Unit  
 Wilmington, Illinois



M7



**Well Type**  
IP In Plume  
EW Early Warning  
CM Compliance

2,4-Dinitrotoluene Remediation Goal = 0.42 µg/L

ND = Indicates analyte not detected at or above Method Detection Limit

µg/L = micrograms per liter

NS = not sampled



- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - Remediation Goal Contour Line (µg/L) (inferred)
  - Concentration Contour Line (µg/L) (inferred)
  - Groundwater Management Zones



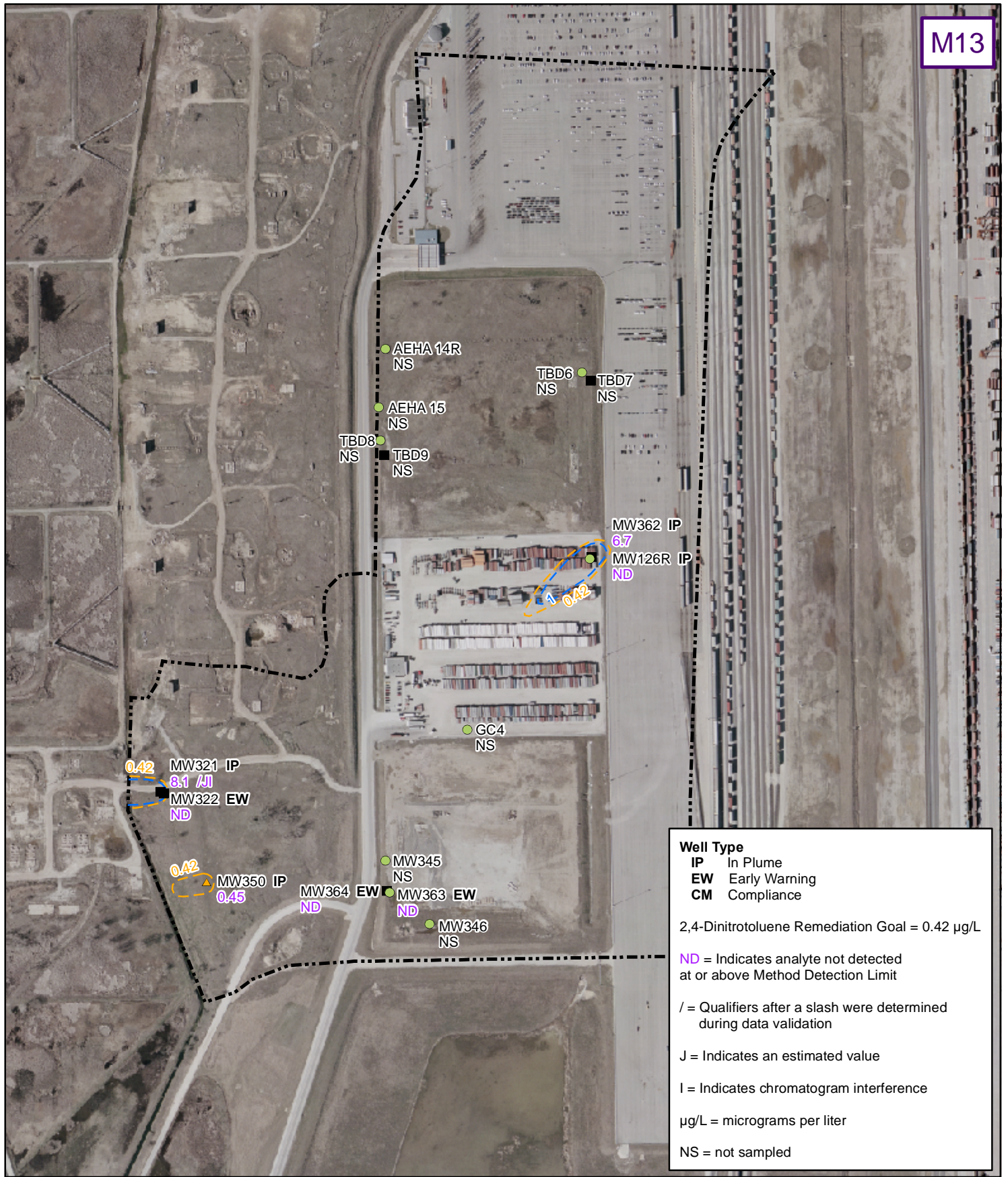
Projection UTM Zone 16  
Horizontal Datum NAD83  
Units Feet  
1 inch equals 400 feet  
0 400 Feet



**FIGURE D13**  
**AREA M7**  
**2,4-Dinitrotoluene Contours**  
**October 2007**  
Joliet Army Ammunition Plant  
Groundwater Operable Unit  
Wilmington, Illinois



M13



- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - Remediation Goal Contour Line (µg/L) (inferred)
  - Concentration Contour Line (µg/L) (inferred)
  - Groundwater Management Zones



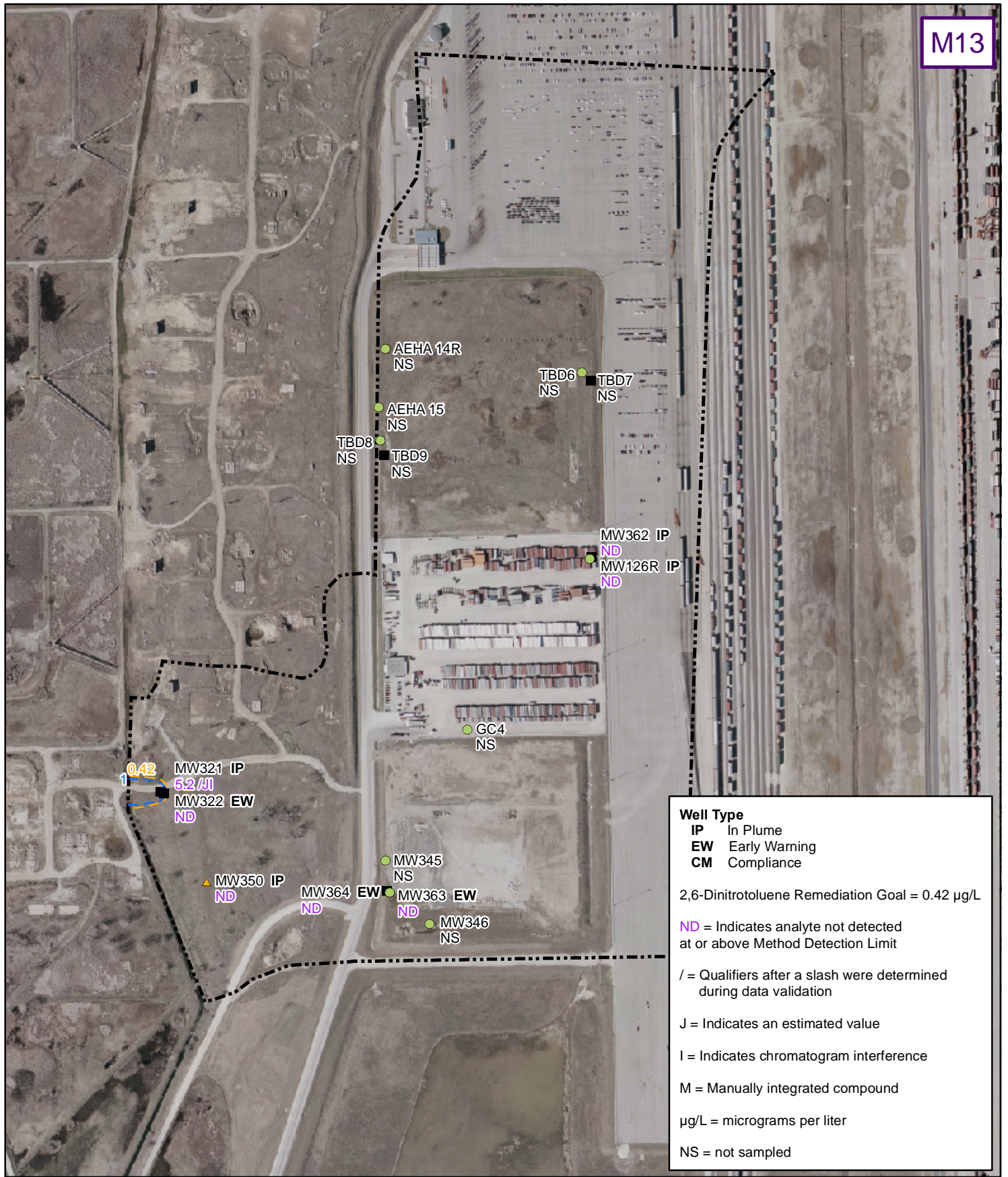
Projection UTM Zone 16  
 Horizontal Datum NAD83  
 Units Feet  
 1 inch equals 500 feet  
 0 500 Feet



**FIGURE D14**  
**AREA M13**  
**2,4-Dinitrotoluene Contours**  
**October 2007**  
 Joilet Army Ammunition Plant  
 Groundwater Operable Unit  
 Wilmington, Illinois



M13



#### Well Type

IP In Plume  
EW Early Warning  
CM Compliance

2,6-Dinitrotoluene Remediation Goal = 0.42 µg/L

ND = Indicates analyte not detected at or above Method Detection Limit

/ = Qualifiers after a slash were determined during data validation

J = Indicates an estimated value

I = Indicates chromatogram interference

M = Manually integrated compound

µg/L = micrograms per liter

NS = not sampled



Prepared by  
AMEC for



#### Legend

- Bedrock Monitoring Well
- ▲ Combination Monitoring Well
- Overburden Monitoring Well
- 3.3 Concentration in (µg/L)
- Remediation Goal Contour Line (µg/L) (inferred)
- Concentration Contour Line (µg/L) (inferred)
- Groundwater Management Zones



Projection UTM Zone 16

Horizontal Datum NAD83

Units Feet

1 inch equals 500 feet

0 500 Feet



#### FIGURE D15

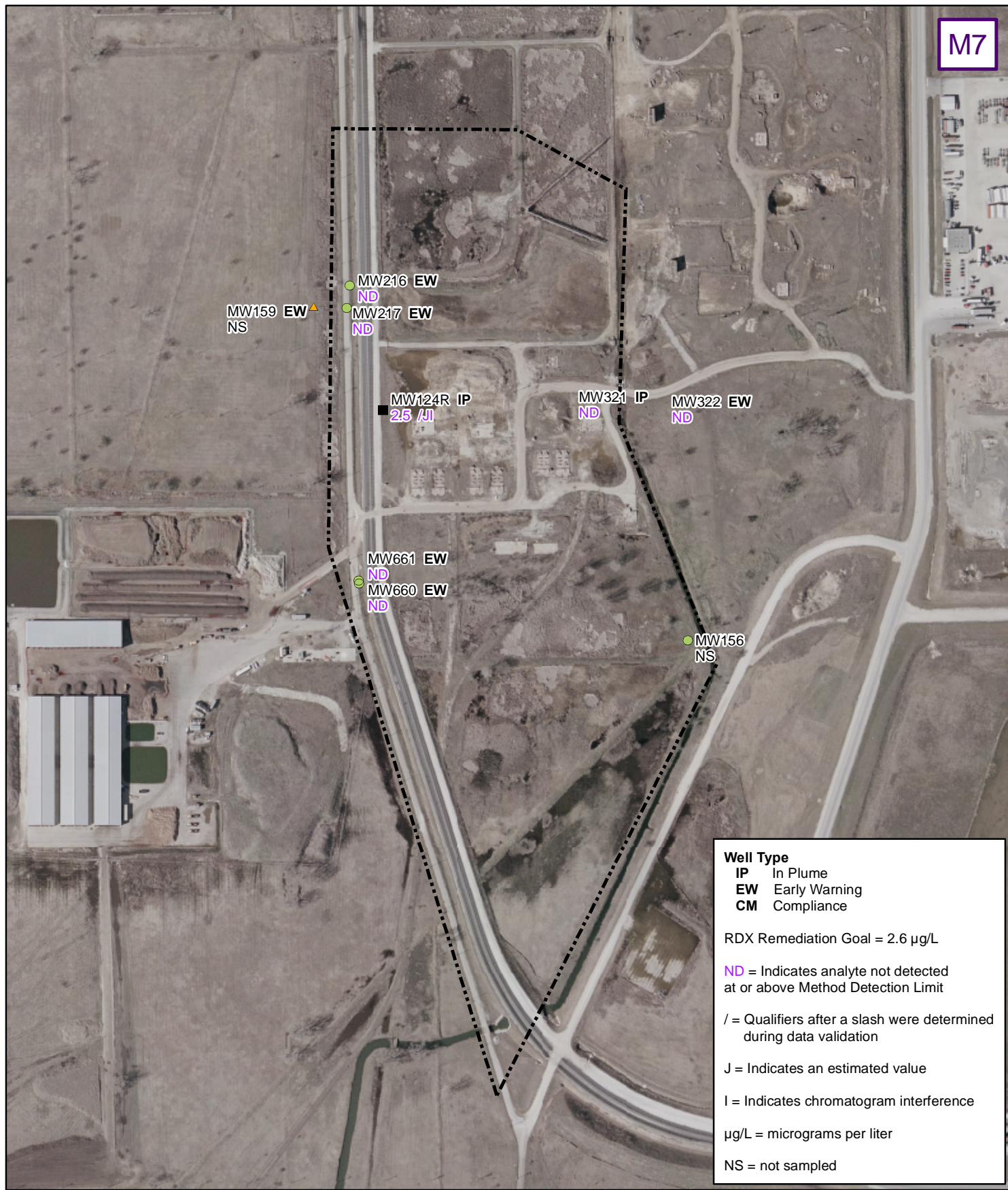
AREA M13

2,6-Dinitrotoluene Contours  
October 2007

Joilet Army Ammunition Plant  
Groundwater Operable Unit  
Wilmington, Illinois



M7



Prepared by  
AMEC for



**Legend**

- Bedrock Monitoring Well
- ▲ Combination Monitoring Well
- Overburden Monitoring Well
- 3.3 Concentration in (µg/L)
- Remediation Goal Contour Line (µg/L) (inferred)
- Concentration Contour Line (µg/L) (inferred)
- Groundwater Management Zones



Projection UTM Zone 16  
Horizontal Datum NAD83  
Units Feet  
1 inch equals 400 feet  
0 400 Feet

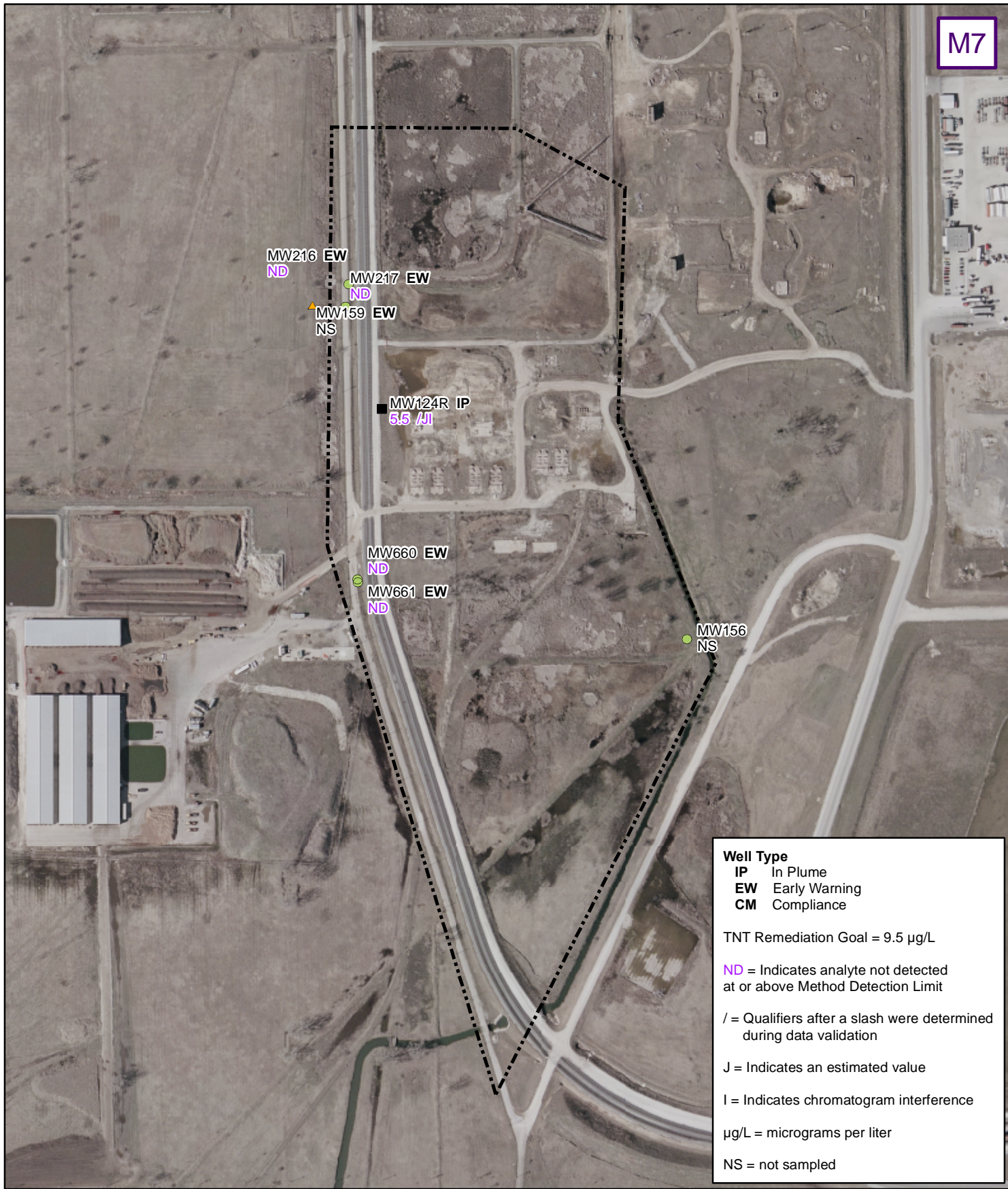


**FIGURE D16**  
**AREA M7**  
**RDX Contours**  
**October 2007**

Joilet Army Ammunition Plant  
Groundwater Operable Unit  
Wilmington, Illinois



M7



- Legend**
- Bedrock Monitoring Well
  - ▲ Combination Monitoring Well
  - Overburden Monitoring Well
  - 3.3 Concentration in (µg/L)
  - Remediation Goal Contour Line (µg/L) (inferred)
  - Concentration Contour Line (µg/L) (inferred)
  - Groundwater Management Zones



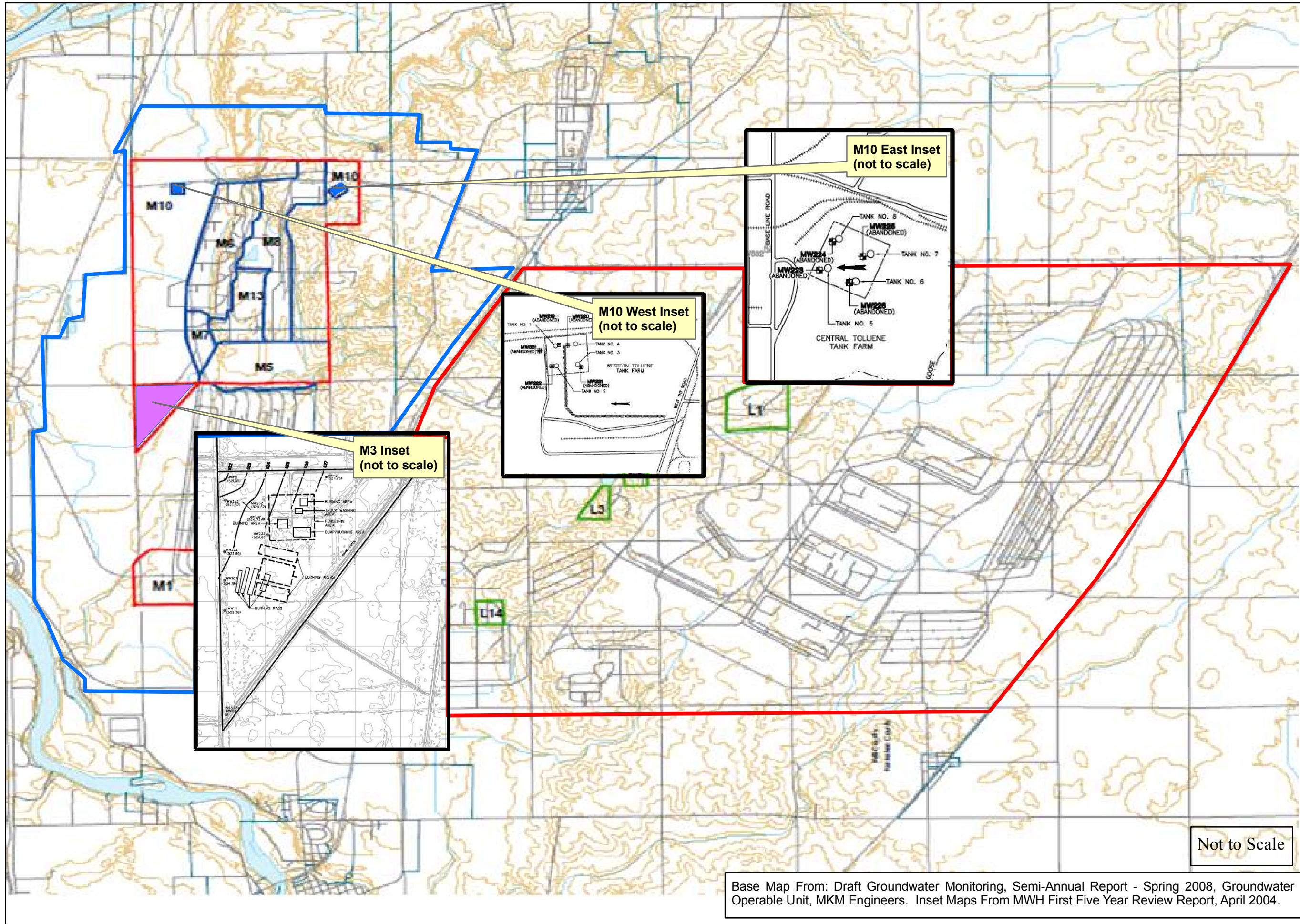
Projection UTM Zone 16  
Horizontal Datum NAD83  
Units Feet  
1 inch equals 400 feet  
0 400 Feet



**FIGURE D17**  
**AREA M7**  
**TNT Contours**  
**October 2007**

Joilet Army Ammunition Plant  
Groundwater Operable Unit  
Wilmington, Illinois





Base Map From: Draft Groundwater Monitoring, Semi-Annual Report - Spring 2008, Groundwater Operable Unit, MKM Engineers. Inset Maps From MWH First Five Year Review Report, April 2004.

LOCATION PLAN SHOWING GRU 3 SITES			Revision	Date	By	Description
SECOND FIVE-YEAR REVIEW REPORT GROUNDWATER OPERABLE UNIT JOLIET ARMY AMMUNITION PLANT WILMINGTON, WILL COUNTY, ILLINOIS						

FIGURE: A1-39



**Attachment 2**

Public Notice of the Five Year Review and Public Comment Period

CERTIFICATE OF PUBLICATION

STATE OF ILLINOIS.) Ss.  
County of Will,

Copy of Notice Herein Referred To

I, Janet M. Fisher

do hereby certify that Eric D. Fisher the publisher of the  
Free Press Advocate, which is now and has  
been for more than six months prior to the first publication of this notice hereto  
annexed, a weekly newspaper of general circulation, printed and  
published in the city of Wilmington in  
said County, and that the said advertisement or notice relating to the matter of

The Joliet Army Ammunition Plant Draft Final Five-Year Review  
Reports for Soil and Groundwater Operable Units, etc.

has been published in said paper every week, one time consecutively of the issues commencing  
April 22 A.D. 20 09, and ending April 22 A.D. 20 09

which are the dates of the first and last papers containing the same.

Given under my hand this 29th day of April A.D. 20 09

Printer's Fee \$ 231.00

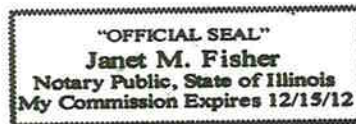
Paid 20

By

Eric D. Fisher

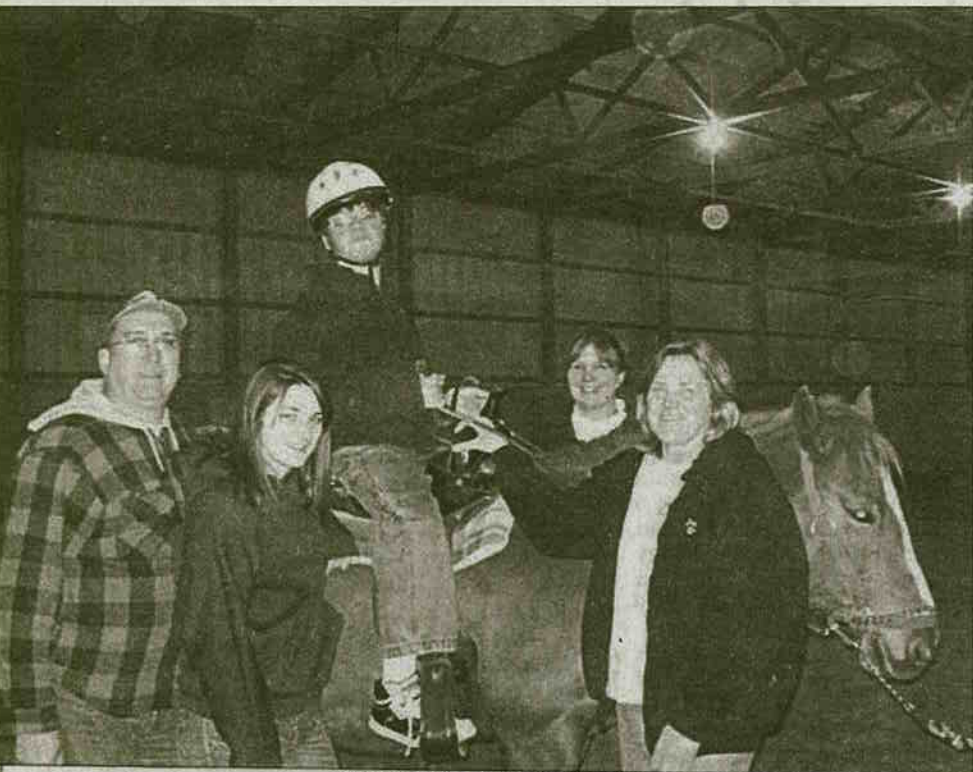
Eric D. Fisher Publisher

Janet M. Fisher





# Lions Club sponsors Wilson in therapeutic riding



Courtesy photo  
THE WILMINGTON Lions Club recently sponsored Erik Wilson (seated on horse) to an eight-week scholarship program at the Sunrise Center Therapeutic Riding Center. Shown with Wilson are (from left) Lion John Persic Jr., volunteer Jenny Winters, Kari Wilson and owner/operator (left) Kris Mondrella. For more information about the organization call Mondrella at 815-467-9332.

SEND NEWS AND PICS  
BY E-MAIL TO  
fpnads@cbcast.com

## Sheriff's sale of 3512 John Street PUBLIC NOTICE

PURSUANT TO THE FAIR DEBT COLLECTION PRACTICES ACT YOU ARE ADVISED THAT THIS LAW FIRM IS DEEMED TO BE A DEBT COLLECTOR ATTEMPTING TO COLLECT A DEBT AND ANY INFORMATION OBTAINED WILL BE USED FOR THAT PURPOSE.

**SHERIFF'S SALE**  
STATE OF ILLINOIS,  
COUNTY OF WILL, IN THE  
CIRCUIT COURT OF THE TWELFTH  
JUDICIAL CIRCUIT OF ILLINOIS,  
WILL COUNTY, GENERAL DIVISION  
U.S. BANK NATIONAL ASSOCIATION,  
AS TRUSTEE FOR THE SPECIALTY  
UNDERWRITING AND RESIDENTIAL  
FINANCE TRUST MORTGAGE LOAN  
ASSET-BACKED CERTIFICATES  
SERIES 2006-BC5, Plaintiff, vs. JORDAN ELLEVAN; ET AL., Defendant. No. 08 CH 4156.

**NOTICE OF SHERIFF SALE**  
Public notice is hereby given that in pursuance of a judgment of said Court entered in the above-entitled cause on the 2nd day of December, 2008, I, PAUL J. KAUPAS, Sheriff of Will County, Illinois, will on Wednesday, the 6th day of May, 2009, commencing at 12:00 o'clock noon, at the Sheriff's

TO SUBSCRIBE  
CALL 476-7966  
OR 634-0315

## Sheriff's sale of 3237 E. Buried Oak Dr. PUBLIC NOTICE

PURSUANT TO THE FAIR DEBT COLLECTION PRACTICES ACT YOU ARE ADVISED THAT THIS LAW FIRM IS DEEMED TO BE A DEBT COLLECTOR ATTEMPTING TO COLLECT A DEBT AND ANY INFORMATION OBTAINED WILL BE USED FOR THAT PURPOSE.

**SHERIFF'S SALE**  
STATE OF ILLINOIS,  
COUNTY OF WILL, IN THE  
CIRCUIT COURT OF THE TWELFTH  
JUDICIAL CIRCUIT OF ILLINOIS,  
WILL COUNTY, GENERAL DIVISION  
HSBC BANK USA, AS TRUSTEE FOR  
MANA 2007-A2, Plaintiff, vs. NEVA  
NICHOLS AKA NEVA G. NICHOLS;  
SPECIALIZED LOAN SERVICING LLC;  
MORTGAGE ELECTRONIC REGISTRATION  
SYSTEMS, INC.; WILLOW  
BROOK ESTATES COMMUNITY  
ASSOCIATION; Defendant. No. 08 CH 4446.

**NOTICE OF SHERIFF SALE**  
Public notice is hereby given that in pursuance of a judgment of said Court entered in the above-entitled cause on the 7th day of January, 2009, I, PAUL J. KAUPAS, Sheriff of Will County, Illinois, will on Wednesday, the 6th day of May, 2009, commencing at 12:00 o'clock noon, at the Sheriff's Office in the Will County Courthouse, 14 West Jefferson Street, in the City of Joliet, Will County, Illinois, sell to the highest and best bidder or bidders the following-described real estate, or so much thereof as may be sufficient to satisfy said decree, to-wit:

LOT 81, IN WILLOWBROOK ESTATES UNIT NUMBER 6, BEING A RESUBDIVISION OF LOTS 9 AND 16 IN THE SUBDIVISION OF THE NORTHEAST 1/4 OF SECTION 7 AND ALSO PART OF LOT 17 IN THE ASSESSOR'S SUBDIVISION OF FRACTIONAL SECTION 8, ALL IN TOWNSHIP 34 NORTH, RANGE 15 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED JULY 6, 1979 AS DOCUMENT NO. R79-23832, AND BY CERTIFICATES OF CORRECTION RECORDED MAY 20, 1980 AS DOCUMENT NOS. R80-13293 AND R80-13294, IN WILL COUNTY, ILLINOIS.

Commonly known as: 3237 EAST BURIED OAK DRIVE, CRETE, IL 60417  
P.I.N.: 16-08-102-005-0000

The property is improved with a single family dwelling.  
Terms of sale: Ten percent (10%) at the time of sale and the balance within twenty-four (24) hours plus interest at the statutory Judgment rate on any unpaid portion of the sale price from the date of the sale to the date of payment. All payments of the amount bid shall be in cash or certified funds payable to the Sheriff of Will County.

Pursuant to Local Court Rule 11.03 (7) and 735 ILCS 5/15-1512, the amount of any surplus bid will be held by the Sheriff until a party obtains a court order for its distribution or for 60 days following the date of the entry of the order confirming the sale, at which time, in the absence of an order directing payment of the surplus it may be automatically forfeited to the State without further notice.

**FOR INFORMATION PLEASE**  
CONTACT:  
Freedman Anselmo Lindberg  
& Rappe LLC  
1807 West Diehl Road, Suite 333  
Naperville, IL 60563  
P: 630-983-0770  
F: 630-428-4620  
Plaintiff's Attorney

PAUL J. KAUPAS  
Sheriff of Will County  
Published in The Free Press  
Advocate, Wednesday, April 8, 15 and 22, 2009.

GROUND AS SHOWN IN SAID PLAT AS CREATED BY DOCUMENT R73-13978, IN WILL COUNTY, ILLINOIS.

Commonly known as: 824 GREENBRIAR LANE, UNIVERSITY PARK, IL 60466.

P.I.N.: 14-13-108-002  
The property is improved with a single family dwelling.

Terms of sale: Ten percent (10%) at the time of sale and the balance within twenty-four (24) hours plus interest at the statutory Judgment rate on any unpaid portion of the sale price from the date of the sale to the date of payment. All payments of the amount bid shall be in cash or certified funds payable to the Sheriff of Will County.

Pursuant to Local Court Rule 11.03 (7) and 735 ILCS 5/15-1512, the amount of any surplus bid will be held by the Sheriff until a party obtains a court order for its distribution or for 60 days following the date of the entry of the order confirming the sale, at which time, in the absence of an order directing payment of the surplus it may be automatically forfeited to the State without further notice.

**FOR INFORMATION PLEASE**  
CONTACT:  
FISHER & SHAPIRO, LLC  
4201 LAKE COOK ROAD  
NORTHBROOK, IL 60062  
847-291-1717  
847-291-3434 fax  
Plaintiff's Attorney

PAUL J. KAUPAS  
Sheriff of Will County  
Published in The Free Press  
Advocate, Wednesday, April 8, 15 and 22, 2009.

NO. 172228 IN PLAT BOOK 8 ON PAGE 44 IN WILL COUNTY, ILLINOIS.

Commonly known as: 1507 EAST CAST STREET, JOLIET, IL 60432

P.I.N.: 30-07-11-410-030  
07-11-410-030

The property is improved with a single family dwelling.

Terms of sale: Ten percent (10%) at the time of sale and the balance within twenty-four (24) hours plus interest at the statutory Judgment rate on any unpaid portion of the sale price from the date of the sale to the date of payment. All payments of the amount bid shall be in cash or certified funds payable to the Sheriff of Will County.

Pursuant to Local Court Rule 11.03 (7) and 735 ILCS 5/15-1512, the amount of any surplus bid will be held by the Sheriff until a party obtains a court order for its distribution or for 60 days following the date of the entry of the order confirming the sale, at which time, in the absence of an order directing payment of the surplus it may be automatically forfeited to the State without further notice.

**FOR INFORMATION PLEASE**  
CONTACT:  
Gomberg, Sharfman, Gold  
& Ostler P.C.  
208 South LaSalle Street, Suite 1410  
Chicago, Illinois 60604  
P: 312-332-6194  
F: 312-332-4083  
Plaintiff's Attorney

PAUL J. KAUPAS  
Sheriff of Will County  
Published in The Free Press  
Advocate, Wednesday, April 8, 15 and 22, 2009.

## Sheriff's sale of 277 Richmond Dr. PUBLIC NOTICE

PURSUANT TO THE FAIR DEBT COLLECTION PRACTICES ACT YOU ARE ADVISED THAT THIS LAW FIRM IS DEEMED TO BE A DEBT COLLECTOR ATTEMPTING TO COLLECT A DEBT AND ANY INFORMATION OBTAINED WILL BE USED FOR THAT PURPOSE.

**SHERIFF'S SALE**  
STATE OF ILLINOIS,  
COUNTY OF WILL, IN THE  
CIRCUIT COURT OF THE TWELFTH  
JUDICIAL CIRCUIT OF ILLINOIS,  
WILL COUNTY, GENERAL DIVISION  
AURORA LOAN SERVICES, LLC, Plaintiff, vs. MICHAEL STASIEK; LAKEWOOD FALLS PHASE 5 HOMEOWNERS ASSOCIATION C/O STEVEN P BLOOMBERG; FIFTH THIRD BANK; UNKNOWN HEIRS AND LEGATEES OF MICHAEL STASIEK, IF ANY; UNKNOWN OWNERS AND NON RECORD CLAIMANTS, Defendant, No. 08 CH 4381.

**NOTICE OF SHERIFF SALE**  
Public notice is hereby given that in pursuance of a judgment of said Court entered in the above-entitled cause on the 6th day of January, 2009, I, PAUL J. KAUPAS, Sheriff of Will County, Illinois, will on Wednesday, the 6th day of May, 2009, commencing at 12:00 o'clock noon, at the Sheriff's Office in the Will County Courthouse, 14 West Jefferson Street, in the City of Joliet, Will County, Illinois, sell to the highest and best bidder or bidders the following-described real estate, or so much thereof as may be sufficient to satisfy said decree, to-wit:

THAT PART OF LOT 67 IN LAKEWOOD FALLS UNIT 5 POD 22 SUBDIVISION, BEING A SUBDIVISION OF PART OF THE SOUTHEAST 1/4 OF SECTION 12, TOWNSHIP 36 NORTH, RANGE 9, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED OCTOBER 12, 1999 AS DOCUMENT R99-124554, DESCRIBED AS FOLLOWS: BEGINNING AT THE MOST NORTHERLY CORNER OF LOT 67; THENCE SOUTH 57 DEGREES 56 MINUTES 36 SECONDS EAST, 52.44 FEET TO A POINT OF CURVE; THENCE SOUTHEASTERLY ALONG A CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 570.00 FEET, A DISTANCE OF 52.64 FEET; THENCE SOUTH 32 DEGREES 03 MINUTES 24 SECONDS WEST, 42.92 FEET; THENCE NORTH 58 DEGREES 03 MINUTES 24 SECONDS WEST, 105.00 FEET; THENCE NORTH 32 DEGREES 03 MINUTES 24 SECONDS EAST, 45.50 FEET TO THE POINT OF BEGINNING, IN WILL COUNTY, ILLINOIS; SITUATED IN WILL COUNTY, ILLINOIS.

Commonly known as: 277 RICHMOND DR., ROMEOVILLE, IL 60446  
P.I.N.: 06-03-12-409-018

The property is improved with a single family dwelling.  
Terms of sale: Ten percent (10%) at the time of sale and the balance within twenty-four (24) hours plus interest at the statutory Judgment rate on any unpaid portion of the sale price from the date of the sale to the date of payment. All payments of the amount bid shall be in cash or certified funds payable to the Sheriff of Will County. Judgment amount is \$129,529.42 plus interest, cost and post judgment advances, if any.

Pursuant to Local Court Rule 11.03 (7) and 735 ILCS 5/15-1512, the amount of any surplus bid will be held by the Sheriff until a party obtains a court order for its distribution or for 60 days following the date of the entry of the order confirming the sale, at which time, in the absence of an order directing payment of the surplus it may be automatically forfeited to the State without further notice.

**FOR INFORMATION PLEASE**  
CONTACT:  
PIERCE & ASSOCIATES  
ONE NORTH DEARBORN  
THIRTEENTH FLOOR  
CHICAGO, IL  
312-346-9088  
312-346-1557 fax  
Plaintiff's Attorney

PAUL J. KAUPAS  
Sheriff of Will County  
Published in The Free Press  
Advocate, Wednesday, April 8, 15 and 22, 2009.

## LOOKING FOR DIRECTION IN THIS VOLATILE MARKET? LET'S TALK.

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## PUBLIC NOTICE

### JOLIET ARMY AMMUNITION PLANT DRAFT FINAL FIVE-YEAR REVIEW REPORTS FOR SOIL AND GROUNDWATER OPERABLE UNITS

The United States Army is preparing the Second Five-Year Review Reports for Soil and Groundwater Operable Units at the Joliet Army Ammunition Plant, located in Will County, south of the Town of Elwood, Illinois and north of Wilmington, Illinois. In accordance with Federal law, reviews are conducted every five years to evaluate whether the selected cleanup remedies remain protective of human health and the environment.

The Five-Year Review Reports and other site related documents are available for review at the Following locations:

Joliet Public Library  
150 N Ottawa St  
Joliet, IL 60432  
(815) 740-2660

Joliet Army Ammunition Plant  
Office/Information Repository  
29401 South Route 53  
Wilmington, IL 60481-8879

There is a 30-day comment period on the contents of the Five-Year Review Reports, which extends from April 20, 2009 to May 20, 2009. Comments received during this time will be addressed and incorporated, to the maximum extent practical, in the Final Five-Year Review Reports.

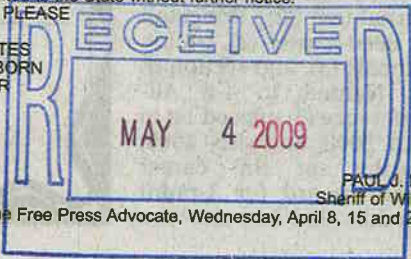
Comments must be submitted to:

Joliet Army Ammunition Plant  
Attn: Mr. Arthur M. Holz  
Commander's Representative  
29401 South Route 53  
Wilmington, IL 60481-8879

Comments must be received on or before May 20, 2009.

Please share this information regarding the five-year review with anyone interested in this site.

Published in The Free Press Advocate, Wilmington, IL, April 22, 2009





# Suburban Chicago Newspapers Certificates of Publication

State of Illinois - County of ☐ Cook ☐ Kane ☐ Lake ☐ McHenry  
☐ DuPage ☒ Will

Suburban Chicago Newspapers, does hereby certify it has published the attached advertisements in the following secular newspapers. All newspapers meet Illinois Compiled Statute requirements for publication of Notices per Chapter 715 ILCS 5/0.01 et seq. R.S. 1874, P728 Sec 1, EFF. July 1, 1874. Amended By Laws 1959, P1494, EFF. July 17, 1959. Formerly Ill. Rev. Stat. 1991, CH100, P1..

Note: Legal Notice appeared in the following checked positions.

PUBLICATION DATE(S): 4/19/09 TO 4/19/09.

\_\_\_\_ WEEKS

## Daily Papers

☐ The Beacon News

☐ The Courier News

☒ The Herald News

☐ The News Sun

☐ The Naperville Sun

## Weekly Papers

☐ Batavia Sun

☐ Bolingbrook Sun

☐ Downers Grove Sun

☐ Fox Valley Villages Sun

☐ Geneva Sun

☐ Glen Ellyn Sun

☐ Homer Township/Lockport/Lemont Sun

☐ Lincoln Way Sun

☐ Lisle Sun

☐ Plainfield Sun

☐ St. Charles Sun

☐ Wheaton Sun



IN WITNESS WHEREOF, the undersigned, being duly authorized, has caused this Certificate to be signed, and its official seal affixed at Glenview, Illinois

By

*John G. Bieschke*

John G. Bieschke

Legal Advertising Manager (Official Title)

Subscribed and sworn to before me this 19th Day of April A.D. 2009

By:

*Mary Lou Krameich*

For Suburban Chicago Newspapers

Fee: \$420.00 Ad No. 685250 Account No. 600062781

## YOUR VIEW: LETTERS TO THE EDITOR

## Foreclosures need to stop

In Rabbi Josef Germaine's Common Sense column of March 26, the rabbi appears to have the absolutely right idea when he suggests a moratorium, or at least a stop, of delinquent payments for housing at this time.

The serious problem of rising unemployment of healthy workers calls for unprecedented action by the government. We are going into deep debt trying to save banks when we should be trying to save people.

The first step in that direction is to require home sellers to postpone foreclosure indefinitely. We all have to suffer some deprivation in this emergency. Let us do it in a way that keeps people from becoming burglars and bettors in order to save their families in health and hope.

Harry E. Mongold

Because underage smoking is so pervasive in our society, our focus is directed toward the issue of tobacco. Coincidentally, the Coalition for a Drug Free Will County proposed a tobacco licensing ordinance for unincorporated Will County just a few years ago.

Facing hindrances at its initial proposal, we have dusted off this ordinance and updated the prevalence of unlicensed tobacco vendors within Will County. We aspire to gain public support to ease the path of passing this ordinance.

To accomplish our goal, the ordinance mandates all vendors within unincorporated Will County have licenses to sell tobacco. With our country spending nearly \$4 billion on health-care just because of cigarette smoking, the ordinance will diminish these costs by promoting individuals to live a smoke-free life.

To those who have criticized Obama for his stimulus package, I say that since he has taken office, he has done more toward solving problems than any other president except perhaps Franklin D. Roosevelt, who also inherited a mess.

There is no consensus on how to repair our economy, but Obama had the courage to take steps toward the goal. The stimulus package may not be perfect, but it sets recovery in motion. It took years for the economy to tumble so far. This problem is analogous to stopping a runaway freight train heading downhill. It's going to take time and commitment from the government and public.

Obama is attempting to stem the tide of rampant corporate greed ignored by our previous administration. He has begun to address the mounting threat from Afghanistan and Pakistan. As demon-

## Thanks for election support

To New Lenox residents who supported my candidacy, thanks for supporting my interest in serving our community as your village trustee once again. As in the past years, I will work with all the local taxing bodies, businesses and future interests in making New Lenox the community that has strength and endurance to prosper and grow during these difficult economic times.

My sincere appreciation goes to all those who worked side by side with me during my campaign. The controversial petition challenge certainly opened my eyes to what has become of our small-town politics and local

campaigning. Nick DiSandro and I learned what it meant to run as independents. I applaud his commitment to continue his interest in running even though the outcome was not in his favor.

My family, close friends, neighbors and community leaders continue to feed my desire to serve our community. I will continue in the path of open and honest government, maintain community trust and continue to believe that one person, one voice, can make a difference.

I am honored to have been re-elected, and I will continue to serve the residents of New Lenox to the best of my ability.

Thank you for trusting in my leadership.  
Annette J. Bowden  
New Lenox

## Traditions pizza

In these hard times, there are still places that hold their hand.

We want to thank the staff of Traditions Restaurant and Mr. Acord for their support and Mr. Acord's pizza. The pizza was delicious! We give a big shout to our class gift. We give a big shout to Traditions! St. Patrick School Mary Workman, L

University of St. Francis  
Schola Cantorum  
presents

**PUBLIC NOTICE**  
**JOLIET ARMY AMMUNITION PLANT**  
**DRAFT FINAL FIVE-YEAR REVIEW REPORTS**  
**FOR SOIL AND GROUNDWATER OPERABLE UNITS**

The United States Army is preparing the Second Five-Year Review Reports for Soil and Groundwater Operable Units at the Joliet Army Ammunition Plant, located in Will County, south of the Town of Elwood, Illinois and north of Wilmington, Illinois. In accordance with Federal law, reviews are conducted every five years to evaluate whether the selected cleanup remedies remain protective of human health and the environment.

The Five-Year Review Reports and other site related documents are available for review at the following locations:

Joliet Public Library  
150 N Ottawa St  
Joliet, IL 60432  
(815) 740-2660

Joliet Army Ammunition Plant  
Office/Information Repository  
29401 South Route 53  
Wilmington, IL 60481-8879

There is a 30-day comment period on the contents of the Five-Year Review Reports, which extends from April 20, 2009 to May 20, 2009. Comments received during this time will be addressed and incorporated, to the maximum extent practical, in the Final Five-Year Review Reports.

Comments must be submitted to:

Joliet Army Ammunition Plant  
Attn: Mr. Arthur M. Holz  
Commander's Representative  
29401 South Route 53  
Wilmington, IL 60481-8879

Comments must be received on or before May 20, 2009.

Please share this information regarding the five-year review with anyone interested in this site.

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53.MOB • BALANCES • VIEW TRANSACTIONS  
TRANSFERS • ALERTS

**Attachment 3**  
List of References and Documents Reviewed

## **LIST OF DOCUMENTS REVIEWED**

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**Attachment 4**  
Summary of Historical Groundwater Analytical Results

## **Abbreviations and Notes Contained in Laboratory Data Summary Tables**

### **Abbreviations**

NA = Not Applicable

NC = Not considered to be a contaminant of concern at the site.

NS = No Standard

RG = Remedial Goal

µg/L = micrograms per liter

### **Laboratory or Validation Flags**

\* = LCS, LCD, MD: Batch quality control exceeds the upper or lower control limits.

+ = Indicates that the result was not detected at or above the listed method detection limit.

B = Compound was found in the blank sample.

D = Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.

I = Indicates interferences on the chromatogram.

J = Result is an estimated value below the reporting limit or a tentatively identified compound

M = Manually integrated compound.

Q = Unknown flag from older data.

S = Unknown flag from older data.

R = Quality control indicates the data is not usable.

U = Analyte was not detected at or above the stated reporting limit (or the method detection limit if a + is included in the LF/VF column).

# **GRU 1 Explosives**



**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

				Compounds				1,3,5- Trinitrobenzene		1,3- Dinitrobenzene		2,4,6- Trinitrotoluene (TNT)		2,4- Dinitrotoluene		2,6- Dinitrotoluene		2-Amino-4,6- Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6- Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
				Unit				ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG				5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG				5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
Surface Water RG				15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
L1	MW131	MW131	6/10/1981	1610		NA		4710		1.6		4.1		NA		1.9	U	NA		NA		NA		NA		NA		NA		NA		NA			
L1	MW131	MW131	11/15/1985	1610		5		2150		2.01		4.14		NA		NA		NA		NA		NA		NA		NA		7	U	58.6					
L1	MW131	MW131	4/22/1986	755		2.3	U	576		0.56	U	8.54		NA		NA		NA		NA		NA		NA		NA		7	U	21.7					
L1	MW131	MW131	8/21/1991	1300		0.611	U	1900		0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	38.6		2.49	U				
L1	MW131	MW131	7/23/1998	4670		16	U	4060		12	U	22	U	160		40	U	NA		NA		NA		25	U	14	U	33	U	42	U				
L1	MW131	MW131	7/13/1999	39	U	39	U	4500		31	U	31	U	240		78	U	NA		NA		NA		39	U	39	U	39	U	78	U				
L1	MW131	MW131-DUP	7/13/1999	40	U	40	U	5200		32	U	32	U	80		80	U	NA		NA		NA		40	U	40	U	40	U	80	U				
L1	MW131	MW131	10/20/1999	740	D	39	U	1200	D	16	U	31	U	78	U	78	U	78	U	78	U	78	U	39	U*	39	U	39	U	78	U				
L1	MW131	MW131	5/22/2000	1300	D	3.9	U	1100	D	1.6	U	3.1	U	34		7.8	U	7.8	U	7.8	U	7.8	U	3.9	U	3.9	U	3.9	U	7.8	U				
L1	MW131	MW131-DUP	5/22/2000	1400	D	7.1	U	1200	D	2.8	U	5.7	U	41		14	U	14	U	14	U	14	U	7.1	U	7.1	U	21		14	U				
L1	MW131	MW131	10/18/2000	1400	D	39	U	860	D	16	U	31	U	78	U	78	U	78	U	78	U	78	U	39	U	39	U	39	U	78	U				
L1	MW131	MW131-DUP	10/18/2000	1300	D	47	U	810		19	U	37	U	94	U	94	U	94	U	94	U	94	U	47	U	47	U	47	U	94	U				
L1	MW131	MW131	5/29/2001	3400		5.2	U	3000		5.2	U*	10	U*	99		10	U	10	U	77		10	U	5.2	U	5.2	U	70		10	U				
L1	MW131	MW131-DUP	5/29/2001	3600		13	U	3100		13	U*	25	U*	110		25	U	25	U	86		25	U	13	U	13	U	73		25	U				
L1	MW131	MW131	10/29/2001	1700		6.5	U	1000		6.5	U*	13	U*	45		13	U	13	U	33		13	U	6.5	U	6.5	U	21		13	U				
L1	MW131	MW131-DUP	10/29/2001	1500		6	U	950		6	U*	12	U*	43		12	U	12	U	33		12	U	6	U	6	U	23		12	U				
L1	MW131	MW131	5/10/2002	3800		20	U	4100		20	U	39	U	100		39	U	39	U	110		39	U	20	U	20	U	20	U	39	U				
L1	MW131	MW131-DUP	5/10/2002	3100		20	U	2700		20	U	39	U	79		39	U	39	U	77		39	U	20	U	20	U	20	U	39	U				
L1	MW131	MW131	10/28/2002	7.6	U	7.6	U	1200		0.82	U+	4	U+	42		15	U	15	U	30		15	U	15	U	7.6	U	7.6	U	15	U				
L1	MW131	MW131	5/20/2003	39	U	39	U	1400		4.2	U+	21	U+	78	U	78	U	78	U	78	U	78	U	78	U	39	U	39	U	78	U				
L1	MW131	MW131	10/23/2003	1100		4.2	U	840		0.46	U+	2.2	U+	29		8.5	U	8.5	U	27		8.5	U	8.5	U	4.2	U	4.2	U	8.5	U				
L1	MW131	MW131	5/26/2004	4400		6.4	U	8300		0.69	U+	3.4	U+	130		13	U	13	U	87		13	U	13	U	6.4	U	6.4	U	13	U				
L1	MW131	MW131	10/26/2004	2000		39	U	980		NA		14	U+	78	U	78	U	78	U	78	U	78	U	78	U	39	U	39	U	78	U				
L1	MW131	MW131	7/27/2005	1600		3.9	U	890		0.32	U+	0.71	U+	36		7.8	U	7.8	U	26		7.8	U	7.8	U	3.9	U	0.77	U+	7.8	U				
L1	MW131	MW131	10/25/2005	1800		3.9	U	1300		0.32	U+	0.71	U+	48		7.8	U	7.8	U	33		7.8	U	7.8	U	3.9	U	0.77	U+	7.8	U				
L1	MW131	MW131	5/5/2006	3200		3.9	U	4400		0.32	U+	0.71	U+	75		7.8	U	7.8	U	62		7.8	U	7.8	U	3.9	U	0.77	U+	7.8	U				
L1	MW131	MW131	10/19/2006	180		3.9	U	150		0.32	U+	0.71	U+	29		7.8	U	7.8	U	26		7.8	U	7.8	U	3.9	U	0.77	U+	7.8	U				
L1	MW131	MW131	5/1/2007	4200		3.7	U+	9900		3.6	U+	8	U+	4	U+	9.3	U+	16	U+	8.4	U+	9.3	U+	14	U+	3.6	U+	8.7	U+	7.4	U+				
L1	MW131	MW131-DUP	5/1/2007	4500		4.2	U+	10000		4.1	U+	9.1	U+	4.5	U+	11	U+	18	U+	9.5	U+	11	U+	16	U+	4.1	U+	9.9	U+	8.3	U+				
L1	MW131	MW131	10/16/2007	1700		1.7	U+	1100		4.7	U+	6.6	U+	4.6	U+	8.3	U+	7.1	U+	6.5	U+	6.5	U+	2.9	U+	2.5	U+	4.1	U+	6.1	U+				
L1	MW131	MW131	5/14/2008	3100		4.5	U	4900		4.5	U	9	U	100		9	U	9	U	63		9	U	9	U	4.5	U	4.5	U	9	U				
L1	MW171	MW171	11/13/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U				
L1	MW171	MW171	5/26/2004	0.47	U	0.47	U	0.47	U	0.05	U+	0.25	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.94	U				

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Minimum RG		5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																
Risk Based RG		5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																
Surface Water RG		15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L1	MW172	MW172	3/9/1983	9.2		NA		40.8		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA	
L1	MW172	MW172	9/28/1983	2.8	U	NA		10.6		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA	
L1	MW172	MW172	10/30/1985	3.08		2.3	U	16.2		0.56	U	0.12	U	NA		NA		NA		NA		NA		NA		14.2		5.6	U		
L1	MW172	MW172	4/14/1986	3.84		2.3	U	12.9		0.56	U	0.12	U	NA		NA		NA		NA		NA		NA		7.22		5.6	U		
L1	MW172	MW172	8/23/1991	0.449	U	0.611	U	2.34		0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	8.79		2.49	U
L1	MW172	MW172	7/23/1998	0.7		0.16	U	3.4		0.12	U	0.22	U	2.5		0.4	U	NA		NA		NA		0.25	U	0.14	U	1.3		0.42	U
L1	MW172	MW172-DUP	7/23/1998	0.8		0.16	U	3.6		0.12	U	0.22	U	2.5		0.4	U	NA		NA		NA		0.25	U	0.14	U	1.5		0.42	U
L1	MW172	MW172	7/13/1999	0.39	U	0.39	U	3.7		0.31	U	0.31	U	3.1		0.78	U	NA		NA		NA		0.39	U	0.39	U	1.6		0.78	U
L1	MW172	MW172	10/6/1999	0.48		0.39	U	2.3		0.16	U	0.31	U	2.8		0.78	U	0.78	U*	NA		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L1	MW172	MW172	5/19/2000	0.51		0.39	U	2.6		0.16	U	0.31	U	1.1		0.78	U	0.78	U	1.6		0.78	U	0.39	U	0.39	U	1.3		0.78	U
L1	MW172	MW172	10/18/2000	0.43		0.39	U	1.8		0.16	U	0.31	U	1		0.78	U	0.78	U	1.4		0.78	U	0.39	U	0.39	U	0.88		0.78	U
L1	MW172	MW172	5/29/2001	0.78	U	0.78	U	3		0.78	U*	1.6	U*	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.78	U	0.78	U	1.6		1.6	U
L1	MW172	MW172	10/29/2001	0.57		0.42	U	2.6		0.42	U*	0.85	U*	1.2		0.85	U	0.85	U	1.7		0.85	U	0.42	U	0.42	U	1.7		0.85	U
L1	MW172	MW172	5/10/2002	1		0.39	U	4.1		0.39	U	0.78	U	1.3		0.78	U	0.78	U	1.8		0.78	U	0.39	U	0.39	U	2.4		0.78	U
L1	MW172	MW172	10/28/2002	0.68	U	0.68	U	1.6		0.074	U+	0.36	U+	1.4	U	1.4	U	1.4	U	1.5		1.4	U	1.4	U	0.68	U	0.82		1.4	U
L1	MW172	MW172	5/20/2003	0.39	U	0.39	U	2.2		0.042	U+	0.21	U+	1		0.78	U	0.78	U	1.3		0.78	U	0.78	U	0.39	U	1.5		0.78	U
L1	MW172	MW172	10/23/2003	0.52		0.39	U	3		0.042	U+	0.21	U+	1.3		0.78	U	0.78	U	1.7		0.78	U	0.78	U	0.39	U	1.8		0.78	U
L1	MW172	MW172	5/26/2004	0.92		0.65	U	5.1		0.07	U+	0.35	U+	1.3	U	1.3	U	1.3	U	1.8		1.3	U	1.3	U	0.65	U	2.6		1.3	U
L1	MW172	MW172	10/26/2004	0.49		0.39	U	2.4		0.12	U+	0.14	U+	1		0.78	U	0.78	U	1.4		0.78	U	0.78	U	0.39	U	1.1		0.78	U
L1	MW172	MW172	7/26/2005	0.39	U	0.39	U	1.2		0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.96		0.78	U	0.78	U	0.39	U	0.51		0.78	U
L1	MW172	MW172-DUP	7/26/2005	0.39	U	0.39	U	1.3		0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.97		0.78	U	0.78	U	0.39	U	0.52		0.78	U
L1	MW172	MW172	10/25/2005	0.51	U	0.51	U	1.9		0.042	U+	0.093	U+	1	U	1	U	1	U	1.4		1	U	1	U	0.51	U	0.73		1	U
L1	MW172	MW172-DUP	10/25/2005	0.49	U	0.49	U	1.6		0.04	U+	0.089	U+	0.98	U	0.98	U	0.98	U	1.3		0.98	U	0.98	U	0.49	U	0.71		0.98	U
L1	MW172	MW172	5/5/2006	0.47		0.39	U	2.3		0.032	U+	0.071	U+	0.86		0.78	U	0.78	U	1.1		0.78	U	0.78	U	0.39	U	1.1		0.78	U
L1	MW172	MW172-DUP	5/5/2006	0.49		0.39	U	2.5		0.032	U+	0.071	U+	0.97		0.78	U	0.78	U	1.3		0.78	U	0.78	U	0.39	U	1.2		0.78	U
L1	MW172	MW172	10/19/2006	0.51	U	0.51	U	2.6		0.042	U+	0.092	U+	1.1		1	U	1	U	1.6		1	U	1	U	0.51	U	1.7		1	U
L1	MW172	MW172-DUP	10/19/2006	0.52	U	0.52	U	3.4		0.043	U+	0.095	U+	1.5		1	U	1	U	2		1	U	1	U	0.52	U	2.4		1	U
L1	MW172	MW172	5/1/2007	0.62		0.037	U+	5.1		0.036	U+	0.08	U+	1.3		0.093	U+	0.16	U+	2		0.093	U+	0.14	U+	0.036	U+	3.3		0.074	U+
L1	MW172	MW172	10/16/2007	0.027	U+	0.017	U+	1.5		0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	1.2		0.065	U+	0.029	U+	0.025	U+	0.92		0.061	U+
L1	MW172	MW172-DUP	10/16/2007	0.031	U+	0.02	U+	1.9		0.054	U+	0.076	U+	1		0.095	U+	0.082	U+	1.5		0.075	U+	0.033	U+	0.029	U+	1.2		0.07	U+
L1	MW172	MW172	5/14/2008	0.42	U	0.42	U	3		0.42	U	0.83	U	1		0.83	U	0.83	U	1.6		0.83	U	0.83	U	0.42	U	1.9		0.83	U
L1	MW172	MW172-DUP	5/14/2008	0.39	U	0.39	U	2.8		0.39	U	0.78	U	0.98		0.78	U	0.78	U	1.5		0.78	U	0.78	U	0.39	U	1.8		0.78	U

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Site		Well ID		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L1	MW173	MW173	3/9/1983	6.87		NA		50.3		0.28	U	3	U	NA		14	U	NA		NA		NA		NA		NA		NA		NA		NA	
L1	MW173	MW173	9/28/1983	2.8	U	NA		68.4		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA		NA	
L1	MW173	MW173	10/31/1985	14		2.3	U	105		0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		56.5		5.6	U		
L1	MW173	MW173	4/14/1986	2.09		2.3	U	11		0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		8		5.6	U		
L1	MW173	MW173	8/23/1991	5.38		0.611	U	55		0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		43.8		0.645	U	42.1		2.49	U		
L1	MW173	MW173	7/7/1998	4.3		0.16	U	28.3		0.12	U	0.22	U	10.4		0.4	U	NA		NA		NA		1.6		0.14	U	13.2		0.42	U		
L1	MW173	MW173	7/13/1999	0.39	U	0.39	U	28		0.31	U	0.31	U	13		0.78	U	NA		NA		NA		1.4		0.39	U	4.9		0.78	U		
L1	MW173	MW173	10/6/1999	3.7		0.39	U	28		0.16	U	0.31	U	16		0.78	U	0.78	U	NA		0.78	U	2.4		0.39	U	21		0.78	U		
L1	MW173	MW173-DUP	10/6/1999	3.5		0.39	U	24		0.16	U	0.31	U	13		0.78	U	0.78	U*	NA		0.78	U	2		0.39	U	17		0.78	U		
L1	MW173	MW173	5/19/2000	3.8		0.56	U	22	D	0.22	U	0.45	U	6.2		1.1	U	1.1	U	6		1.1	U	1.6		0.56		15	D	1.1	U		
L1	MW173	MW173	10/18/2000	4.7		0.39	U	28	D	0.16	U	0.31	U	7		0.78	U	0.78	U	7.3		0.78	U	2		0.39	U	16	D	0.78	U		
L1	MW173	MW173	5/29/2001	3.6		0.39	U	24		0.39	U*	0.78	U*	5		0.78	U	0.78	U	5.2		0.78	U	1.6		0.39	U	14		0.78	U		
L1	MW173	MW173	10/29/2001	3.8		0.6	U	24		0.6	U*	1.2	U*	6.7		1.2	U	1.2	U	7.8		1.2	U	22		0.6	U	17		1.2	U		
L1	MW173	MW173	5/10/2002	4.2		0.39	U	23	J	0.39	U	0.78	U	5.7		0.78	U	0.78	U	5.8		0.78	U	2		0.39	U	14	J	0.78	U		
L1	MW173	MW173	10/28/2002	0.53	U	0.53	U	24		0.049	U+	0.24	U+	7.1		1.1	U	1.1	U	7.9		1.1	U	2.1		0.53	U	15		1.1	U		
L1	MW173	MW173-DUP	10/28/2002	0.46	U	0.46	U	23		0.049	U	0.24	U	7		0.91	U	0.91	U	7.8		0.91	U	2		0.46	U	14		0.91	U		
L1	MW173	MW173	5/20/2003	0.62	U	0.62	U	16		0.072	U+	0.33	U+	5.2		1.2	U	1.2	U	5.4		1.2	U	1.6		0.62	U	13		1.2	U		
L1	MW173	MW173-DUP	5/20/2003	0.67	U	0.67	U	16		0.072	U	0.36	U	5.1		1.3	U	1.3	U	5.3		1.3	U	1.5		0.67	U	13		1.3	U		
L1	MW173	MW173	10/23/2003	3.2		0.49	U	23		0.052	U+	0.26	U+	6.3		0.98	U	0.98	U	6.7		0.98	U	1.9		0.49	U	17		0.98	U		
L1	MW173	MW173-DUP	10/23/2003	3		0.39	U	21		0.042	U	0.21	U	6.1		0.78	U	0.78	U	6.5		0.78	U	1.8		0.39	U	15		0.78	U		
L1	MW173	MW173	5/26/2004	3.7		0.42	U	28		0.046	U+	0.22	U+	5.4		0.85	U	0.85	U	5.7		0.85	U	1.8		0.42	U	14		0.85	U		
L1	MW173	MW173	10/26/2004	3.6		0.7	U	26		0.13	U+	0.15	U+	6.1		1.4	U	1.4	U	6.5		1.4	U	1.9		0.7	U	17		1.4	U		
L1	MW173	MW173-DUP	10/26/2004	3.7		0.42	U	24		0.13	U	0.15	U	6.3		0.83	U	0.83	U	6.6		0.83	U	2		0.42	U	16		0.83	U		
L1	MW173	MW173	7/26/2005	2.3		0.39	U	21		0.032	U+	0.071	U+	4.9		0.78	U	0.78	U	5.6		0.78	U	1.4		0.39	U	13		0.78	U		
L1	MW173	MW173	10/25/2005	2.2		0.4	U	18		0.43		0.072	U+	6.4		0.79	U	0.79	U	6.9		0.79	U	1.8		0.4	U	13		0.79	U		
L1	MW173	MW173	5/5/2006	2.5		0.46	U	15		0.038	U+	0.083	U+	4.6		0.91	U	2.8		5		0.91	U	1.4		0.46	U	11		0.91	U		
L1	MW173	MW173	10/19/2006	0.59		0.57	U	9.6		0.045	U+	0.1	U+	5.5		1.1	U	1.1	U	6.4		1.1	U	1.1	U	0.57	U	11		1.1	U		
L1	MW173	MW173	5/1/2007	3		0.033	U+	33		0.032	U+	0.071	U+	5.6		0.082	U+	0.14	U+	5.9		0.082	U+	2.3		0.032	U+	15		0.065	U+		
L1	MW173	MW173	10/16/2007	0.027	U+	0.017	U+	7.2		0.047	U+	0.066	U+	5		0.083	U+	0.071	U+	7.2		0.065	U+	1.6		0.025	U+	11		0.061	U+		
L1	MW173	MW173	5/14/2008	1.4		0.39	U	14		0.39	U	0.78	U	4.3		0.78	U	0.78	U	4.7		0.78	U	1.1		0.39	U	9.3		0.78	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
L1	MW174	MW174	3/9/1983	2.8	U	NA		0.31	U	0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA			
L1	MW174	MW174	9/28/1983	2.8	U	NA		0.61		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA			
L1	MW174	MW174	10/31/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U				
L1	MW174	MW174	4/14/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U				
L1	MW174	MW174	8/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
L1	MW174	MW174	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L1	MW174	MW174	10/7/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U*	0.39	U	0.39	U	0.78	U		
L1	MW174	MW174	10/18/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	MW174	MW174	10/29/2001	0.75	U	0.75	U	0.75	U	0.75	U*	1.5	U*	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.75	U	0.75	U	0.75	U	1.5	U		
L1	MW174	MW174	10/28/2002	0.69	U	0.69	U	0.69	U	0.074	U+	0.37	U+	1.4	U	1.4	U	1.4	U	1.4	U	14	U	1.4	U	0.69	U	0.69	U	1.4	U		
L1	MW174	MW174	10/23/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L1	MW174	MW174	10/26/2004	0.66	U	0.66	U	0.66	U	0.21	U+	0.24	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.66	U	0.66	U	1.3	U		
L1	MW174	MW174	10/25/2005	0.77	U	0.77	U	0.77	U	0.063	U+	0.14	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.77	U	0.15	U+	1.5	U		
L1	MW174	MW174	10/19/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L1	MW174	MW174	10/16/2007	0.03	U+	0.019	U+	0.032	U+	0.052	U+	0.073	U+	0.051	U+	0.091	U+	0.078	U+	0.072	U+	0.072	U+	0.032	U+	0.028	U+	0.045	U+	0.067	U+		
L1	MW175	MW175	3/10/1983	2.8	U	NA		0.31	U	0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA			
L1	MW175	MW175	4/14/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U				
L1	MW175	MW175	11/13/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
L1	MW175	MW175	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L1	MW177	MW177	3/9/1983	2.8	U	NA		0.31		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA			
L1	MW177	MW177	9/28/1983	2.8	U	NA		0.31	U	0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA			
L1	MW177	MW177	10/30/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U				
L1	MW177	MW177	4/14/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U				
L1	MW177	MW177	8/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
L1	MW177	MW177	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L1	MW178	MW178	3/9/1983	2.8	U	NA		0.38		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA			
L1	MW178	MW178	11/6/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U				
L1	MW178	MW178	4/14/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U				
L1	MW178	MW178	8/21/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
L1	MW178	MW178	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		



**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

Site		Well ID		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200					
Risk Based RG		5.1		10		9.5		0.42		NC		5100		NC		NC		NC		NC		5100		51		2.6		200					
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L1	MW401	MW401	9/12/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
L1	MW401	MW401	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L1	MW401	MW401	7/13/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
L1	MW401	MW401	10/22/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	MW401	MW401	5/22/2000	0.42	U	0.42	U	0.42	U	0.17	U	0.34	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U*	0.42	U	0.42	U	0.42	U	0.84	U
L1	MW401	MW401	10/18/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	MW401	MW401	10/29/2001	0.6	U	0.6	U	0.6	U	0.6	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	0.6	U	1.2	U		
L1	MW401	MW401	10/28/2002	0.49	U	0.49	U	0.49	U	0.052	U+	0.26	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.98	U
L1	MW401	MW401	10/23/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L1	MW401	MW401	10/26/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L1	MW401	MW401	10/25/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L1	MW401	MW401	10/19/2006	0.46	U	0.46	U	0.46	U	0.037	U+	0.083	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.09	U+	0.91	U
L1	MW401	MW401	10/16/2007	0.063	U/UJ+	0.04	U/UJ+	0.068	U/UJ+	0.11	U/UJ+	0.16	U/UJ+	0.11	U/UJ+	0.2	U/UJ+	0.17	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.068	U/UJ+	0.059	U/UJ+	0.096	U/UJ+	0.14	U/UJ+		
L1	MW401	MW401	5/14/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L1	MW401-RE	MW401-RE	10/16/2007	0.027	U/UJ+	0.017	U/UJ+	0.029	U/UJ+	0.048	U/UJ+	0.067	U/UJ+	0.047	U/UJ+	0.084	U/UJ+	0.072	U/UJ+	0.066	U/UJ+	0.066	U/UJ+	0.029	U/UJ+	0.025	U/UJ+	0.042	U/UJ+	0.062	U/UJ+		
L1	MW610	MW610	7/13/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
L1	MW610	MW610	10/6/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U*	NA		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	MW610	MW610	5/22/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	MW610	MW610	10/18/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	MW610	MW610	10/29/2001	0.49	U	0.49	U	0.49	U	0.49	U*	0.98	U*	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.49	U	0.98	U
L1	MW610	MW610	10/28/2002	0.49	U	0.49	U	0.49	U	0.053	U+	0.26	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U
L1	MW610	MW610	10/23/2003	0.42	U	0.42	U	0.42	U	0.045	U+	0.22	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.42	U	0.83	U
L1	MW610	MW610	10/26/2004	0.65	U	0.65	U	0.65	U	0.2	U+	0.24	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	1.3	U
L1	MW610	MW610	10/21/2005	0.81	U	0.81	U	0.81	U	0.81	U	0.15	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.81	U	0.81	U	1.6	U
L1	MW610	MW610	10/18/2006	0.53	U	0.53	U	0.53	U	0.043	U+	0.096	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.1	U+	1.1	U
L1	MW610	MW610	10/17/2007	0.029	U+	0.018	U+	0.031	U+	0.051	U+	0.072	U+	0.05	U+	0.09	U+	0.077	U+	0.07	U+	0.07	U+	0.031	U+	0.027	U+	0.044	U+	0.066	U+		
L1	MW610	MW610	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L1	MW611	MW611	7/13/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
L1	SW126	SW126	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		

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Site		Well ID		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200					
Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200					
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L1	SW550	SW550	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L1	SW550	SW550	7/13/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
L1	SW550	SW550	10/6/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U*	NA		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	SW550	SW550	5/19/2000	0.47	U	0.47	U	0.47	U	0.19	U	0.38	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.47	U	0.47	U	0.47	U	0.95	U		
L1	SW550	SW550	10/18/2000	4.6	U	4.6	U	4.6	U	1.8	U	3.7	U	9.2	U	9.2	U	9.2	U	9.2	U	9.2	U	4.6	U	4.6	U	4.6	U	9.2	U		
L1	SW550	SW550	5/25/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	SW550	SW550	10/29/2001	0.55	U	0.55	U	0.55	U	0.55	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U		
L1	SW550	SW550	5/10/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	SW550	SW550	10/28/2002	0.47	U	0.47	U	0.47	U	0.05	U+	0.25	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U		
L1	SW550	SW550	5/8/2003	0.55	U	0.55	U	0.55	U	0.06	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U		
L1	SW550	SW550	10/9/2003	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U		
L1	SW550	SW550	5/11/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U		
L1	SW550	SW550	10/14/2004	0.58	U	0.58	U	0.58	U	0.18	U+	0.21	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U
L1	SW550	SW550	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+
L1	SW550	SW550	10/24/2005	0.48	U	0.48	U	0.48	U	0.039	U+	0.088	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.095	U+
L1	SW550	SW550	5/5/2006	0.42	U	0.42	U	0.42	U	0.035	U+	0.076	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.083	U+
L1	SW550	SW550	10/17/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+
L1	SW550	SW550	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
L1	SW550	SW550-DUP	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
L1	SW550	SW550	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+		
L1	SW550	SW550	5/19/2008	0.45	U	0.45	U	0.45	U	0.45	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.45	U
L1	WES1	WES1	7/13/1999	0.78	U	0.78	U	170		0.62	U	0.62	U	14		1.6	U	NA		NA		NA		0.78	U	0.78	U	0.78	U	1.6	U		
L1	WES1	WES1	10/20/1999	12	D	0.39	U	30	D	0.16	U	0.31	U	13		0.78	U	0.78	U	1.1	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	WES1	WES1	5/19/2000	1.9		0.57	U	2.2		0.23	U	0.46	U	3.3		1.1	U	1.1	U	2.6		1.1	U	0.57	U	0.57	U	0.57	U	1.1	U		
L1	WES1	WES1	10/18/2000	13	D	0.39	U	18	D	0.2		0.54		9.6		0.78	U	0.78	U	8.3		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	WES1	WES1	5/29/2001	18		0.39	U	18		0.39	U	0.78	U*	7.7		0.78	U	0.78	U	7.6		0.78	U	0.39	U	0.39	U	0.39	U	0.46		0.78	U
L1	WES1	WES1	10/29/2001	7.6		0.39	U	7.2		0.39	U*	0.78	U*	5.6		0.78	U	0.78	U	5.5		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L1	WES1	WES1	5/10/2002	62		0.39	U	51		0.39	U	0.78	U	17		0.78	U	0.78	U	19		0.78	U	0.39	U	0.39	U	1.3		0.78	U		
L1	WES1	WES1	10/28/2002	0.49	U	0.49	U	11	J	0.052	U+	0.26	U+	12	J	0.98	U	0.98	U	12	J	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.98	U
L1	WES1	WES1	5/20/2003	0.43	U	0.43	U	2.9		0.046	U+	0.23	U+	3.3		0.86	U	0.86	U	3.2		0.86	U	0.86	U	0.86	U	0.43	U	0.43	U	0.86	U
L1	WES1	WES1	10/23/2003	12		3.9	U	27		0.42	U+	2.1	U+	18		7.8	U	7.8	U	17		7.8	U	7.8	U	3.9	U	3.9	U	7.8	U		
L1	WES1	WES1	5/26/2004	27		0.75	U	39		0.081	U+	0.4	U+	12		1.5	U	1.5	U	13		1.5	U	1.5	U	0.75	U	0.75	U	1.5	U		
L1	WES1	WES1	10/26/2004	34		3.9	U	33		1.2	U+	1.4	U+	13		7.8	U	7.8	U	15		7.8	U	7.8	U	3.9	U	3.9	U	7.8	U		
L1	WES1	WES1	7/27/2005	41		0.44	U	50		2.9	M	0.079	U+	15		0.87	U	0.87	U	16		0.87</											

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Minimum RG		5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																
Risk Based RG		5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																
Surface Water RG		15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L1	WES3	WES3	7/13/1999	0.39	U	0.39	U	4.4		0.31	U	0.31	U	3.1		0.78	U	NA		NA		NA		0.39	U	0.39	U	2		0.78	U
L1	WES3	WES3	10/6/1999	1.4	U	0.39	U	3.3		0.16	U	0.31	U	2.9		0.78	U	0.78	U*	NA		0.78	U	0.39	U*	0.39	U	0.39		0.78	U
L1	WES3	WES3	5/19/2000	0.78		0.47	U	1.5		0.19	U	0.37	U	0.96		0.94	U	0.94	U	1.1		0.94	U	0.47	U	0.47	U	0.56		0.94	U
L1	WES3	WES3	10/18/2000	1.5		0.39	U	3		0.16	U	0.31	U	1.4		0.78	U	0.78	U	1.8		0.78	U	0.39	U	0.39	U	1.3		0.78	U
L1	WES3	WES3	5/29/2001	1.2		0.39	U	2.6		0.39	U	0.78	U*	0.98		0.78	U	0.78	U	1.3		0.78	U	0.39	U	0.39	U	1.4		0.78	U
L1	WES3	WES3	10/29/2001	1.1		0.73	U	2.3		0.73	U*	1.5	U*	1.5	U	1.5	U	1.5	U	1.6		1.5	U	0.73	U	0.73	U	1		1.5	U
L1	WES3	WES3	5/10/2002	1.6		0.39	U	3.3		0.39	U	0.78	U	1.1		0.78	U	0.78	U	1.5		0.78	U	0.39	U	0.39	U	1.9		0.78	U
L1	WES3	WES3	10/28/2002	0.42	U	0.42	U	3.4		0.045	U+	0.22	U+	1.5		0.83	U	0.83	U	2.1		0.83	U	0.83	U	0.42	U	1.7		0.83	U
L1	WES3	WES3	5/20/2003	0.68	U	0.68	U	1.1		0.074	U+	0.36	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.68	U	1.4	U
L1	WES3	WES3	10/23/2003	1		0.39	U	2.6		0.042	U+	0.21	U+	1.4		0.78	U	0.78	U	1.8		0.78	U	0.78	U	0.39	U	1.3		0.78	U
L1	WES3	WES3	5/26/2004	1.2		0.68	U	3.1		0.073	U+	0.36	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	1.1		1.4	U
L1	WES3	WES3	10/26/2004	1.5		0.39	U	3.5		0.12	U+	0.14	U+	1.4		0.78	U	0.78	U	1.8		0.78	U	0.78	U	0.39	U	1.6		0.78	U
L1	WES3	WES3	7/26/2005	0.69		0.39	U	1.7		0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	1		0.78	U	0.78	U	0.39	U	0.75		0.78	U
L1	WES3	WES3	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L1	WES3	WES3	10/25/2005	0.86		0.62	U	2		0.051	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.4		1.2	U	1.2	U	0.62	U	0.76		1.2	U
L1	WES3	WES3	5/5/2006	0.47		0.39	U	0.9		0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.8		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L1	WES3	WES3	10/19/2006	0.43		0.41	U	2.6		0.034	U+	0.075	U+	1.2		0.82	U	0.82	U	1.6		0.82	U	0.82	U	0.41	U	1.9		0.82	U
L1	WES3	WES3	5/1/2007	1		0.033	U+	3.2		0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	1		0.082	U+	0.12	U+	0.032	U+	0.93		0.065	U+
L1	WES3	WES3	10/16/2007	0.027	U+	0.017	U+	1.6		0.047	U+	0.066	U+	0.91		0.083	U+	0.071	U+	1.4		0.065	U+	0.029	U+	0.025	U+	1		0.061	U+
L1	WES3	WES3	5/14/2008	0.39	U	0.39	U	1.3		0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.82		0.78	U	0.78	U	0.39	U	0.61		0.78	U
L2	MW132	MW132	6/4/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		1.8	U
L2	MW132	MW132	10/29/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
L2	MW132	MW132	4/17/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
L2	MW132	MW132	9/11/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
L2	MW132	MW132	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
L2	MW132	MW132-DUP	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U

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		Compounds		1,3,5- Trinitrobenzene		1,3- Dinitrobenzene		2,4,6- Trinitrotoluene (TNT)		2,4- Dinitrotoluene		2,6- Dinitrotoluene		2-Amino-4,6- Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6- Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	NL	260	51	2.6	200																
Risk Based RG	5.1	4	9.5	0.42	0.42	NC	5100	NC	NC	NC	NC	5100	51	2.6	200																
Surface Water RG	15	10	75	330	150	NS	62	NS	NS	NS	NS	260	8000	500	NS																
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L2	MW133	MW133	6/5/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		1.8	U
L2	MW133	MW133	10/29/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U		
L2	MW133	MW133	4/15/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U		
L2	MW133	MW133	9/10/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
L2	MW133	MW133	7/27/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
L2	MW133	MW133	11/1/1999	0.39	U*	0.39	U*	0.39	U*	0.16	U*	0.31	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.39	U*	0.39	U*	0.39	U*	0.78	U*
L2	MW133	MW133	5/23/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L2	MW133	MW133	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L2	MW133	MW133	5/29/2001	0.52	U	0.52	U	0.52	U	0.52	U*	1	U*	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	0.52	U	1	U
L2	MW133	MW133	10/30/2001	0.7	U	0.7	U	0.7	U	0.7	U*	1.4	U*	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.7	U	0.7	U	1.4	U
L2	MW133	MW133	5/14/2002	0.41	U	0.41	U	0.41	U	0.41	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.41	U	0.41	U	0.82	U
L2	MW133	MW133	10/29/2002	0.52	U	0.52	U	0.52	U	0.056	U+	0.28	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U
L2	MW133	MW133	5/20/2003	0.53	U	0.53	U	0.53	U	0.057	U+	0.28	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U
L2	MW133	MW133	10/24/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L2	MW133	MW133	5/26/2004	0.7	U	0.7	U	0.7	U	0.076	U+	0.37	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.7	U	1.4	U
L2	MW133	MW133	10/26/2004	0.75	U	0.75	U	0.75	U	0.24	U+	0.28	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.75	U	0.75	U	1.5	U
L2	MW133	MW133	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.97		0.78	U
L2	MW133	MW133	10/25/2005	0.42	U	0.42	U	0.42	U	0.035	U+	0.077	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.083	U+	0.85	U
L2	MW133	MW133	5/9/2006	0.68	U	0.68	U	0.68	U	0.055	U+	0.12	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.13	U+	1.4	U
L2	MW133	MW133	10/13/2006	0.42	U	0.42	U	0.42	U	0.034	U+	0.076	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.082	U+	0.83	U
L2	MW133	MW133	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
L2	MW133	MW133	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
L2	MW133	MW133	5/19/2008	0.57	U	0.57	U	0.57	U	0.57	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	1.1	U
L2	MW135	MW135	6/9/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		1.8	U
L2	MW135	MW135	11/4/1985	1.14	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
L2	MW135	MW135	4/15/1986	1.14	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
L2	MW135	MW135	9/12/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
L2	MW135	MW135	7/23/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U



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Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	4	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L2	MW404	MW404	9/6/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		110		0.645	U	640		2.49	U
L2	MW404	MW404	7/27/1998	1.9	U	1.6	U	1.4	U	1.2	U	2.2	U	2.4	U	4	U	NA		NA		NA		79.8		1.4	U	357		4.2	U
L2	MW404	MW404	7/14/1999	0.42	U	0.42	U	0.42	U	0.33	U	0.33	U	0.83	U	0.83	U	NA		NA		NA		78		0.42	U	460		0.83	U
L2	MW404	MW404-DUP	7/14/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		56		0.39	U	320		0.78	U
L2	MW404	MW404	10/22/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	53	D	0.39	U	250	D/J	0.78	U
L2	MW404	MW404	5/22/2000	0.4	U	0.4	U	0.4	U	0.16	U	0.32	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	43	D	0.4	U	240	D	0.8	U
L2	MW404	MW404-DUP	5/22/2000	0.48	U	0.48	U	0.48	U	0.19	U	0.38	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	43	D	0.48	U	250	D	0.96	U
L2	MW404	MW404	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	68	D	0.39	U	330	D	0.78	U
L2	MW404	MW404-DUP	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	110	D	0.39	U	470	D	0.78	U
L2	MW404	MW404	5/29/2001	0.78	U	0.78	U	0.78	U	0.78	U*	1.6	U*	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	65		0.78	U	380		1.6	U
L2	MW404	MW404-DUP	5/29/2001	0.65	U	0.65	U	0.65	U	0.65	U*	1.3	U*	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	66		0.65	U	370		1.3	U
L2	MW404	MW404	10/30/2001	0.76	U	0.76	U	0.76	U	0.76	U*	1.5	U*	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	54		0.76	U	300		1.5	U
L2	MW404	MW404-DUP	10/30/2001	0.71	U	0.71	U	0.71	U	0.71	U*	1.4	U*	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	58		0.71	U	330		1.4	U
L2	MW404	MW404	5/14/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	13		0.39	U	35		0.78	U
L2	MW404	MW404-DUP	5/14/2002	0.43	U	0.43	U	0.43	U	0.43	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	11		0.43	U	29		0.86	U
L2	MW404	MW404	10/29/2002	0.44	U	0.44	U	0.44	U	0.047	U+	0.24	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	59		0.44	U	260		0.87	U
L2	MW404	MW404-DUP	10/29/2002	0.46	U	0.46	U	0.46	U	0.049	U	0.24	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	59		0.46	U	260		0.91	U
L2	MW404	MW404	5/21/2003	0.56	U	0.56	U	0.56	U	0.06	U+	0.3	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	25		0.56	U	120		1.1	U
L2	MW404	MW404	10/24/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	79		0.39	U	320		0.78	U
L2	MW404	MW404	5/25/2004	0.6	U	0.6	U	0.6	U	0.064	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	7.4		0.6	U	15		1.2	U
L2	MW404	MW404	10/26/2004	0.51	U	0.51	U	0.51	U	0.16	U+	0.19	U+	1	U	1	U	1	U	1	U	1	U	100		0.51	U	350		1	U
L2	MW404	MW404	7/26/2005	0.4	U	0.4	U	0.4	U	0.033	U+	0.072	U+	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	99		0.4	U	330		0.79	U
L2	MW404	MW404	10/25/2005	0.6	U	0.6	U	0.6	U	0.049	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	57		0.6	U	270		1.2	U
L2	MW404	MW404	5/9/2006	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	33		0.44	U	100		0.88	U
L2	MW404	MW404	10/13/2006	0.64	U	0.64	U	0.64	U*	0.053	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	78		0.64	U	270		1.3	U
L2	MW404	MW404	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	21		0.032	U+	45		0.065	U+
L2	MW404	MW404	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	52		0.025	U+	250		0.061	U+
L2	MW404	MW404	5/19/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L2	MW405	MW405	9/6/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
L2	MW405	MW405	7/27/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	1.5		0.4	U	NA		NA		NA		11.7		0.14	U	118		0.42	U
L2	MW405	MW405	7/14/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
L2	MW405	MW405	10/22/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U*	0.78	U	0.78	U*	0.39	U	0.39	U	0.39	U	0.78	U
L2	MW405	MW405-DUP	10/22/1999	0.39	U	0.39	U*	0.39	U*	0.16	U	0.31	U	0.78	U	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.39	U	0.39	U*	0.39	U	0.78	U
L2	MW405	MW405	5/22/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L2	MW405	MW405	10/19/2000	0.39	U	0.39	U	0.39	U	0.16		0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L2	MW405	MW405	5/29/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L2	MW405	MW405	10/30/2001	0.61	U	0.61	U	0.61	U	0.61	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.61	U	0.61	U	0.61	U	1.2	U
L2	MW405	MW405	5/14/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L2	MW405	MW405	10/29/2002	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U
L2	MW405	MW405	5/21/2003	0.66	U	0.66	U	0.66	U	0.071	U+	0.35	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.66	U	0.66	U	1.3	U
L2	MW405	MW405	10/23/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L2	MW405	MW405	5/26/2004	0.46	U	0.46	U	0.46	U	0.05	U+	0.24	U+	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.46	U	0.46	U	0.92	U
L2	MW405	MW405	10/26/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L2	MW405	MW405	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L2	MW405	MW405	10/25/2005	0.64	U	0.64	U	0.64	U	0.052	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.13	U+	1.3	U
L2	MW405	MW405	5/9/2006	0.47	U	0.47	U	0.47	U	0.039	U+	0.086	U+	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.47	U	0.094	U+	0.95	U
L2	MW405	MW405	10/13/2006	0.39	U	0.39	U	0.39	U*	0.032	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L2	MW405	MW405	4/27/2007	0.041	U+	0.035	U+	0.038	U+	0.034	U+	0.075	U+	0.037	U+	0.086	U+	0.14	U+	0.078	U+	0.086	U+	0.13	U+	0.034	U+	0.081	U+	0.068	U+
L2	MW405	MW405-DUP	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
L2	MW405	MW405	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	3.7	/JL	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
L2	MW405	MW405	5/19/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L2	MW405	MW405-DUP	5/19/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L2	MW406	MW406	9/9/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
L2	MW406	MW406	7/27/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
L2	MW406	MW406	10/30/2001	0.72	U	0.72	U	0.72	U	0.72	U*	1.4	U*	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.72	U	0.72	U	0.72	U	1.4	U
L2	MW406	MW406	10/29/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L2	MW406	MW406	10/24/2003	0.42	U	0.42	U	0.42	U	0.046	U+	0.22	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U
L2	MW406	MW406	10/27/2004	0.78	U	0.78	U	0.78	U	0.24	U+	0.29	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.78	U	0.78	U	1.6	U
L2	MW406	MW406	10/25/2005	0.83	U	0.83	U	0.83	U	0.068	U+	0.15	U+	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	0.83	U	0.26	U+	1.7	U
L2	MW406	MW406	10/13/2006	0.47	U	0.47	U	0.47	U*	0.038	U+	0.085	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.092	U+	0.94	U
L2	MW406	MW406	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+

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Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																			
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																			
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
L2	MW407	MW407	9/9/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
L2	MW407	MW407	7/27/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L2	MW407	MW407	10/30/2001	0.74	U	0.74	U	0.74	U	0.74	U*	1.5	U*	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.74	U	0.74	U	0.74	U	1.5	U		
L2	MW407	MW407	10/29/2002	0.49	U	0.49	U	0.49	U	0.053	U+	0.26	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U		
L2	MW407	MW407	10/24/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L2	MW407	MW407	10/27/2004	0.78	U	0.78	U	0.78	U	0.24	U+	0.29	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.78	U	0.78	U	1.6	U		
L2	MW407	MW407	10/25/2005	0.76	U	0.76	U	0.76	U	0.062	U+	0.14	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.76	U	0.15	U+	1.5	U		
L2	MW407	MW407	10/13/2006	0.63	U	0.63	U	0.63	U*	0.052	U+	0.11	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.63	U	0.12	U+	1.3	U		
L2	MW407	MW407	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+		
L2	MW501	MW501	5/22/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L2	MW501	MW501	5/20/2008	0.42	U	0.42	U	0.42	U	0.42	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.42	U	0.83	U		
L2	MW620	MW620	7/14/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
L2	MW620	MW620	10/21/1999	0.39	U	0.39	U	46		0.16	U	0.31	U	0.78	U	0.78	U	0.78	U*	0.78	U	0.78	U*	0.39	U	0.39	U	0.39	U	0.78	U		
L2	MW620	MW620	5/23/2000	0.54	U	0.54	U	0.54	U	0.22	U	0.43	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.54	U	0.54	U	1.1	U		
L2	MW620	MW620	10/19/2000	0.51	U	0.51	U	0.51	U	0.2	U	0.4	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.51	U	0.51	U	1	U		
L2	MW620	MW620	5/29/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L2	MW620	MW620	10/30/2001	0.61	U	0.61	U	0.61	U	0.61	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.61	U	0.61	U	1.2	U				
L2	MW620	MW620	5/14/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1.4		0.39	U	0.39	U	0.78	U		
L2	MW620	MW620	10/29/2002	0.43	U	0.43	U	0.43	U	0.046	U+	0.23	U+	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.43	U	0.86	U		
L2	MW620	MW620	5/20/2003	0.56	U	0.56	U	0.56	U	0.06	U+	0.3	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.56	U	0.56	U	1.1	U		
L2	MW620	MW620	10/27/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L2	MW620	MW620-DUP	10/27/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L2	MW620	MW620	5/26/2004	0.57	U	0.57	U	0.57	U	0.087	U+	0.3	U+	1.1	U	1.5		1.1	U	1.1	U	1.1	U	1.7		0.57	U	0.57	U	1.1	U		
L2	MW620	MW620-DUP	5/26/2004	0.81	U	0.81	U	0.81	U	0.087	U	0.43	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.8		0.81	U	0.81	U	1.6	U		
L2	MW620	MW620	10/26/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L2	MW620	MW620-DUP	10/26/2004	0.39	U	0.39	U	0.39	U	0.12	U	0.14	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L2	MW620	MW620	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L2	MW620	MW620	10/25/2005	0.8	U	0.8	U	0.8	U	0.066	U+	0.15	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.8	U	0.16	U+	1.6	U		
L2	MW620	MW620	5/9/2006	0.5	U	0.5	U	0.5	U	0.041	U+	0.095	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.5	U	0.099	U+	1	U		
L2	MW620	MW620	10/13/2006	0.48	U	0.48	U	0.48	U*	0.039	U+	0.088	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.095	U+	0.96	U		
L2	MW620	MW620	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
L2	MW620	MW620	10/17/2007	0.038	U+	0.024	U+	0.041	U+	0.066	U+	0.092	U+	0.064	U+	0.12	U+	0.099	U+	0.091	U+	0.091	U+	0.041	U+	0.035	U+	0.057	U+	0.085	U+		
L2	MW620	MW620	5/19/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		

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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
				Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
				Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
L2	MW621	MW621	7/14/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U				
L2	MW621	MW621	10/21/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U*	0.78	U	0.78	U*	0.39	U	0.39	U	0.39	U	0.78	U				
L2	MW621	MW621	5/23/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U				
L2	MW621	MW621	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U				
L2	MW621	MW621	5/29/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U				
L2	MW621	MW621	10/30/2001	0.49	U	0.49	U	0.49	U	0.49	U*	0.98	U*	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.49	U	0.98	U				
L2	MW621	MW621	5/14/2002	0.46	U	0.46	U	0.46	U	0.46	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.46	U	0.91	U				
L2	MW621	MW621	10/29/2002	0.51	U	0.51	U	0.51	U	0.055	U+	0.27	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.51	U	1	U				
L2	MW621	MW621	5/20/2003	0.42	U	0.42	U	0.42	U	0.045	U+	0.22	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.42	U	0.83	U				
L2	MW621	MW621	10/24/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
L2	MW621	MW621	5/26/2004	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U				
L2	MW621	MW621	10/26/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
L2	MW621	MW621	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U				
L2	MW621	MW621	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U				
L2	MW621	MW621-DUP	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U				
L2	MW621	MW621	10/25/2005	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.087	U+	0.88	U				
L2	MW621	MW621-DUP	10/25/2005	0.46	U	0.46	U	0.46	U	0.038	U+	0.084	U+	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.46	U	0.091	U+	0.92	U				
L2	MW621	MW621	5/9/2006	0.4	U	0.4	U	0.4	U	0.033	U+	0.073	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.08	U+	0.81	U				
L2	MW621	MW621-DUP	5/9/2006	0.56	U	0.56	U	0.56	U	0.046	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.56	U	0.11	U+	1.1	U				
L2	MW621	MW621	10/13/2006	0.57	U	0.57	U	0.57	U*	0.046	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.11	U+	1.1	U				
L2	MW621	MW621-DUP	10/13/2006	0.46	U	0.46	U	0.46	U	0.037	U+	0.083	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.09	U+	0.91	U				
L2	MW621	MW621	4/27/2007	0.048	U+	0.041	U+	0.044	U+	0.039	U+	0.088	U+	0.043	U+	0.1	U+	0.17	U+	0.091	U+	0.1	U+	0.15	U+	0.039	U+	0.095	U+	0.08	U+				
L2	MW621	MW621	10/17/2007	0.051	U+	0.032	U+	0.055	U+	0.089	U+	0.13	U+	0.087	U+	0.16	U+	0.13	U+	0.12	U+	0.12	U+	0.055	U+	0.048	U+	0.078	U+	0.12	U+				
L2	MW621	MW621-DUP	10/17/2007	0.048	U+	0.03	U+	0.051	U+	0.083	U+	0.12	U+	0.081	U+	0.15	U+	0.13	U+	0.11	U+	0.11	U+	0.051	U+	0.044	U+	0.072	U+	0.11	U+				
L2	MW621	MW621	5/19/2008	0.59	U	0.59	U	0.59	U	0.59	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	1.2	U				



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Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L2	SW555	SW555	7/28/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
L2	SW555	SW555	7/14/1999	0.51	U	0.51	U	0.51	U	0.4	U	0.4	U	1	U	1	U	NA		NA		NA		0.51	U	0.51	U	0.51	U	1	U
L2	SW555	SW555	10/21/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L2	SW555	SW555	5/23/2000	0.53	U	0.53	U	0.53	U	0.21	U	0.42	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	0.53	U	1.1	U
L2	SW555	SW555	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L2	SW555	SW555	5/29/2001	0.53	U	0.53	U	0.53	U	0.53	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	0.56		1.1	U
L2	SW555	SW555	10/30/2001	0.55	U	0.55	U	0.55	U	0.55	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U
L2	SW555	SW555	5/10/2002	1.3		0.39	U	1.4		0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L2	SW555	SW555	10/29/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L2	SW555	SW555	5/9/2003	0.53	U	0.53	U	0.53	U	0.057	U+	0.28	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U
L2	SW555	SW555-DUP	5/9/2003	0.53	U	0.53	U	0.53	U	0.057	U+	0.28	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U
L2	SW555	SW555	10/10/2003	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U
L2	SW555	SW555	5/11/2004	0.45	U	0.45	U	0.45	U	0.048	U+	0.24	U+	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.45	U	0.9	U
L2	SW555	SW555	10/14/2004	0.73	U	0.73	U	0.73	U	0.23	U+	0.27	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.73	U	0.73	U	1.5	U
L2	SW555	SW555	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L2	SW555	SW555	10/26/2005	0.51	U	0.51	U	0.51	U	0.042	U+	0.092	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.1	U+	1	U
L2	SW555	SW555	5/9/2006	0.55	U	0.55	U	0.55	U	0.045	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.11	U+	1.1	U
L2	SW555	SW555	10/13/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L2	SW555	SW555	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
L2	SW555	SW555	10/17/2007	0.034	U+	0.021	U+	0.036	U+	0.059	U+	0.083	U+	0.058	U+	0.1	U+	0.089	U+	0.081	U+	0.081	U+	0.036	U+	0.031	U+	0.051	U+	0.076	U+
L2	SW555	SW555-DUP	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
L2	SW555	SW555	5/19/2008	0.71	U	0.71	U	0.71	U	0.71	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.71	U	0.71	U	1.4	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																			
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																			
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
L3	MW136	MW136	6/5/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U
L3	MW136	MW136	10/29/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
L3	MW136	MW136	4/18/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
L3	MW136	MW136	9/11/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
L3	MW410	MW410	8/3/1993	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		3.94		0.645	U	22.2		1.56	U		
L3	MW410	MW410	7/27/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L3	MW410	MW410	7/12/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
L3	MW410	MW410	10/21/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U*	0.78	U	0.78	U*	0.39	U	0.39	U	0.39	U	0.78	U		
L3	MW410	MW410	5/13/2000	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L3	MW410	MW410	5/23/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L3	MW410	MW410	10/19/2000	0.49	U	0.49	U	0.49	U	0.19	U	0.39	U	0.97	U	0.97	U	0.97	U	0.97	U	0.97	U	0.49	U	0.49	U	0.49	U	0.97	U		
L3	MW410	MW410	5/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.45		0.78	U		
L3	MW410	MW410	10/30/2001	0.57	U	0.57	U	0.57	U	0.57	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	0.57	U	1.1	U		
L3	MW410	MW410	10/29/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L3	MW410	MW410	5/21/2003	0.47	U	0.47	U	0.47	U	0.05	U+	0.25	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.94	U		
L3	MW410	MW410	10/27/2003	0.4	U	0.4	U	0.4	U	0.043	U+	0.21	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.57		0.81	U		
L3	MW410	MW410-DUP	10/27/2003	0.39	U	0.39	U	0.39	U	0.042	U	0.21	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.63		0.78	U		
L3	MW410	MW410	5/26/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L3	MW410	MW410-DUP	5/26/2004	0.39	U	0.39	U	0.39	U	0.042	U	0.21	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L3	MW410	MW410	10/26/2004	0.41	U	0.41	U	0.41	U	0.13	U+	0.15	U+	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.41	U	0.82	U		
L3	MW410	MW410	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	2		0.39	U	4.7		0.78	U		
L3	MW410	MW410	10/21/2005	1.5	U	1.5	U	1.5	U	1.5	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	1.5	U	1.5	U	2.9	U		
L3	MW410	MW410	5/5/2006	0.68	U	0.68	U	0.68	U	0.055	U+	0.12	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.13	U+	1.4	U		
L3	MW410	MW410	10/18/2006	0.39	U	0.39	U	0.47		0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.93		0.39	U	2.3		0.78	U		
L3	MW410	MW410	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	1.7		0.032	U+	5		0.065	U+		
L3	MW410	MW410	5/21/2008	0.41	U	0.41	U	0.41	U	0.41	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.41	U	0.82	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L3	MW411	MW411	11/8/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
L3	MW411	MW411	7/27/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
L3	MW411	MW411	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	2.9		0.78	U
L3	MW412	MW412	11/8/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		10.6		0.645	U	77.9		2.49	U
L3	MW412	MW412	7/27/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		2.7		0.14	U	32.6		0.42	U
L3	MW412	MW412	7/12/1999	0.4	U	0.4	U	0.4	U	0.32	U	0.32	U	0.79	U	0.79	U	NA		NA		NA		22		0.4	U	200		0.79	U
L3	MW412	MW412	10/21/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	1.5		0.78	U	0.78	U*	1.8		0.78	U*	20	D	0.39	U	170	D/J	0.78	U
L3	MW412	MW412	5/22/2000	0.62	U	0.62	U	0.62	U	0.25	U	0.49	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	16	D	0.62	U	110	D	1.2	U
L3	MW412	MW412-DUP	5/22/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	1.2		0.78	U	0.78	U	1.3		0.78	U	18	D	0.39	U	120	D	0.78	U
L3	MW412	MW412	10/19/2000	0.52	U	0.52	U	0.52	U	0.21	U	0.42	U	1	U	1	U	1	U	1	U	1	U	12		0.52	U	69		1	U
L3	MW412	MW412-DUP	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.94		0.78	U	10	D	0.39	U	68	D	0.78	U
L3	MW412	MW412	5/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	1.2		0.78	U	0.78	U	1.5		0.78	U	20		0.39	U	210		0.78	U
L3	MW412	MW412-DUP	5/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.92		0.78	U	0.78	U	1.2		0.78	U	22		0.39	U	230		0.78	U
L3	MW412	MW412	10/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.9		0.78	U	13		0.39	U	110		0.78	U
L3	MW412	MW412-DUP	10/30/2001	0.69	U	0.69	U	0.69	U	0.69	U*	1.4	U*	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	14		0.69	U	100		1.4	U
L3	MW412	MW412	5/13/2002	0.58	U	0.58	U	0.58	U	0.58	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	19		0.58	U	130		1.2	U
L3	MW412	MW412	10/29/2002	0.52	U	0.52	U	0.52	U	0.042	U+	0.21	U+	1.4		1	U	1	U	1.9		1	U	24		0.52	U	180		1	U
L3	MW412	MW412-DUP	10/29/2002	0.39	U	0.39	U	0.39	U	0.042	U	0.21	U	1.2		0.78	U	0.78	U	1.7		0.78	U	22		0.39	U	160		0.78	U
L3	MW412	MW412	5/21/2003	0.64	U	0.64	U	0.64	U	0.069	U+	0.34	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	15		0.64	U	98		1.3	U
L3	MW412	MW412	10/28/2003	0.42	U	0.42	U	0.42	U	0.046	U+	0.22	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	11		0.42	U	58		0.85	U
L3	MW412	MW412	5/26/2004	0.61	U	0.61	U	0.61	U	0.066	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.8		1.2	U	40		0.61	U	390		1.2	U
L3	MW412	MW412	10/27/2004	0.66	U	0.66	U	0.66	U	0.21	U+	0.2	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	11		0.66	U	68		1.3	U
L3	MW412	MW412-DUP	10/27/2004	0.55	U	0.55	U	0.55	U	0.17	U	0.2	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	11		0.55	U	63		1.1	U
L3	MW412	MW412	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	1.1		0.78	U	25		0.39	U	230		0.78	U
L3	MW412	MW412	10/21/2005	1.4	U	1.4	U	1.4	U	1.4	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	28		1.4	U	200		2.8	U
L3	MW412	MW412	5/5/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	17		0.39	U	100		0.78	U
L3	MW412	MW412	10/18/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.82		0.78	U	14		0.39	U	71		0.78	U
L3	MW412	MW412	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	1.8		0.032	U+	5.7		0.065	U+
L3	MW412	MW412	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	1		0.083	U+	0.071	U+	1.8		0.065	U+	39		0.025	U+	300		0.061	U+
L3	MW412	MW412	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	1.2		0.78	U	0.78	U	1.8		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

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Site		Well ID		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200					
Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200					
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L3	MW630	MW630	7/12/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
L3	MW630	MW630	10/21/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U*	0.78	U	0.78	U*	0.39	U	0.39	U	0.39	U	0.78	U		
L3	MW630	MW630	5/23/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L3	MW630	MW630	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L3	MW630	MW630	5/30/2001	0.49	U	0.49	U	0.49	U	0.49	U*	0.98	U*	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.49	U	0.98	U		
L3	MW630	MW630	10/30/2001	0.55	U	0.55	U	0.55	U	0.55	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U		
L3	MW630	MW630	5/13/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L3	MW630	MW630	10/29/2002	0.49	U	0.49	U	0.49	U	0.053	U+	0.26	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U		
L3	MW630	MW630	5/21/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L3	MW630	MW630	10/28/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L3	MW630	MW630	5/26/2004	0.5	U	0.5	U	0.5	U	0.054	U+	0.27	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.5	U	0.5	U	1	U		
L3	MW630	MW630	10/27/2004	0.55	U	0.55	U	0.55	U	0.17	U+	0.2	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	1.7		1.1	U		
L3	MW630	MW630	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L3	MW630	MW630	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L3	MW630	MW630	10/26/2005	0.4	U	0.4	U	0.4	U	0.033	U+	0.078	U+	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.4	U	0.078	U+	0.79	U		
L3	MW630	MW630	5/5/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L3	MW630	MW630	10/13/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L3	MW630	MW630	4/27/2007	0.055	U+	0.046	U+	0.05	U+	0.045	U+	0.099	U+	0.049	U+	0.11	U+	0.19	U+	0.1	U+	0.11	U+	0.17	U+	0.045	U+	2	/JI	0.091	U+		
L3	MW630	MW630-DUP	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	1.6	/JI	0.065	U+		
L3	MW630	MW630	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+		
L3	MW630	MW630-DUP	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+		
L3	MW630	MW630	5/20/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200			
Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200			
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L3	MW631	MW631	7/12/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
L3	MW631	MW631	10/20/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U*	0.39	U	0.39	U*	0.78	U
L3	MW631	MW631	5/23/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L3	MW631	MW631	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L3	MW631	MW631	5/30/2001	0.55	U	0.55	U	0.55	U	0.55	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U
L3	MW631	MW631	10/30/2001	0.57	U	0.57	U	0.57	U	0.57	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	0.57	U	1.1	U
L3	MW631	MW631	5/13/2002	0.46	U	0.46	U	0.46	U	0.46	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.46	U	0.91	U
L3	MW631	MW631	10/29/2002	0.52	U	0.52	U	0.52	U	0.056	U+	0.28	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U
L3	MW631	MW631	5/21/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L3	MW631	MW631	10/28/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L3	MW631	MW631	5/26/2004	0.42	U	0.42	U	0.42	U	0.045	U+	0.22	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.39	U	0.42	U	0.42	U	0.83	U
L3	MW631	MW631	10/27/2004	0.42	U	0.42	U	0.42	U	0.13	U+	0.15	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.39	U	0.42	U	0.42	U	0.83	U
L3	MW631	MW631	7/26/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L3	MW631	MW631-DUP	7/26/2005	0.47	U	0.47	U	0.47	U	0.039	U+	0.086	U+	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.47	U	0.094	U+	0.95	U
L3	MW631	MW631	10/26/2005	0.6	U	0.6	U	0.6	U	0.049	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.12	U+	1.2	U
L3	MW631	MW631-DUP	10/26/2005	0.43	U	0.43	U	0.43	U	0.035	U+	0.078	U+	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.085	U+	0.86	U
L3	MW631	MW631	5/5/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L3	MW631	MW631-DUP	5/5/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L3	MW631	MW631	10/13/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L3	MW631	MW631-DUP	10/13/2006	0.49	U	0.49	U	0.49	U	0.04	U+	0.089	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.096	U+	0.98	U
L3	MW631	MW631	4/27/2007	0.047	U+	0.04	U+	0.044	U+	0.039	U+	0.086	U+	0.043	U+	0.1	U+	0.17	U+	0.09	U+	0.1	U+	0.15	U+	0.039	U+	0.094	U+	0.079	U+
L3	MW631	MW631	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
L3	MW631	MW631	5/20/2008	0.49	U	0.49	U	0.49	U	0.49	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U



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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L3	MW633	MW633	7/12/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		22		0.39	U	7.6		0.78	U
L3	MW633	MW633	10/20/1999	0.39	U	0.39	U	0.76		0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U*	0.39	U	0.39	U*	0.78	U
L3	MW633	MW633-DUP	10/20/1999	0.39	U	0.39	U	0.3		0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U*	0.39	U	0.39	U	0.78	U
L3	MW633	MW633	5/23/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L3	MW633	MW633	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.55		0.39	U	2.3		0.78	U
L3	MW633	MW633	5/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1.4		0.39	U	4.1		0.78	U
L3	MW633	MW633	10/30/2001	0.58	U	0.58	U	0.58	U	0.58	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.4		0.58	U	3.7		1.2	U
L3	MW633	MW633	5/13/2002	0.55	U	0.55	U	0.05	U	0.55	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	2.4		0.55	U	17		1.1	U
L3	MW633	MW633	10/29/2002	0.6	U	0.6	U	0.6	U	0.064	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.84	J	0.6	*	2.1		1.2	U
L3	MW633	MW633	5/21/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	2.1		0.78	U
L3	MW633	MW633	10/27/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	3.3		0.39	U	9.8		0.78	U
L3	MW633	MW633	5/25/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	2.1		0.78	U
L3	MW633	MW633	10/26/2004	0.46	U	0.46	U	0.46	U	0.14	U+	0.17	U+	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	1.2		0.46	U	3.8		0.92	U
L3	MW633	MW633	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	1.4		0.78	U
L3	MW633	MW633	10/21/2005	1.3	U	1.3	U	1.3	U	1.3	U*	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	4		1.3	U	11		2.5	U
L3	MW633	MW633	5/10/2006	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.87	U+	0.88	U
L3	MW633	MW633	10/18/2006	0.45	U	0.45	U	0.45	U	0.037	U+	0.082	U+	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.089	U+	0.9	U
L3	MW633	MW633	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	1.7		0.032	U+	5.1		0.065	U+
L3	MW633	MW633	10/17/2007	0.028	U+	0.018	U+	0.03	U+	0.049	U+	0.068	U+	1.1		0.086	U+	0.073	U+	1.8		0.067	U+	35		0.026	U+	300		0.063	U+
L3	MW633	MW633	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	1		0.78	U	0.78	U	1.7		0.78	U	47		0.39	U	390		0.78	U
L3	MW633	MW633-DUP	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.88		0.78	U	0.78	U	1.4		0.78	U	43		0.39	U	280		0.78	U

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Joliet Army Ammunition Plant - Wilmington, IL**

Compounds				1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
Surface Water RG				15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
L3	SW557	SW557	7/24/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L3	SW557	SW557	7/12/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
L3	SW557	SW557	10/21/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U*	0.78	U	0.78	U*	0.48		0.39	U	0.55		0.78	U		
L3	SW557	SW557	5/23/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.76		0.78	U		
L3	SW557	SW557	10/19/2000	0.39	U	0.39	U	0.63		0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L3	SW557	SW557	5/25/2001	0.47	U	0.47	U	0.47	U	0.47	U*	0.94	U*	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.47	U	0.94	U		
L3	SW557	SW557	10/30/2001	0.64	U	0.64	U	0.64	U	0.64	U*	1.3	U*	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.64	U	0.72		1.3	U		
L3	SW557	SW557	5/10/2002	0.46	U	0.46	U	0.46	U	0.46	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.46	U	0.91	U		
L3	SW557	SW557	10/29/2002	0.44	U	0.44	U	0.44	U	0.047	U+	0.23	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.92		0.44	U	2.3		0.87	U		
L3	SW557	SW557	5/9/2003	0.47	U	0.47	U	0.47	U	0.05	U+	0.25	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.94	U		
L3	SW557	SW557	10/10/2003	0.44	U	0.44	U	0.44	U	0.047	U+	0.23	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	1.4		0.87	U		
L3	SW557	SW557	5/11/2004	0.62	U	0.62	U	0.62	U	0.067	U+	0.33	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	1.2	U		
L3	SW557	SW557	10/14/2004	0.46	U	0.46	U	0.46	U	0.14	U+	0.17	U+	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.46	U	0.46	U	0.92	U		
L3	SW557	SW557	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L3	SW557	SW557	10/26/2005	0.46	U	0.46	U	0.46	U	0.037	U+	0.083	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.09	U+	0.91	U		
L3	SW557	SW557	5/5/2006	0.62	U	0.62	U	0.62	U	0.051	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.12	U+	1.2	U		
L3	SW557	SW557	10/17/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L3	SW557	SW557	4/27/2007	0.04	U+	0.034	U+	0.037	U+	0.033	U+	0.073	U+	0.036	U+	0.085	U+	0.14	U+	0.076	U+	0.085	U+	0.13	U+	0.033	U+	0.08	U+	0.067	U+		
L3	SW557	SW557	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+		
L3	SW557	SW557	5/20/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L3	SW558	SW558	5/10/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.42		0.78	U		
L3	SW558	SW558	5/9/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L3	SW558	SW558	5/11/2004	0.68	U	0.68	U	0.68	U	0.074	U+	0.36	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.68	U	1.4	U		
L3	SW558	SW558	5/5/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L3	SW558	SW558	4/27/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
L3	SW558	SW558	10/17/2007	0.034	U+	0.022	U+	0.037	U+	0.06	U+	0.084	U+	0.058	U+	0.11	U+	0.09	U+	0.082	U+	0.082	U+	0.037	U+	0.032	U+	0.052	U+	0.077	U+		
L3	SW558	SW558	5/20/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L3	SW591	SW591	7/28/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L3	SW591	SW591-DUP	7/28/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		

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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl				
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
				Minimum RG	5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200				200	
				Risk Based RG	5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200				200	
Surface Water RG	15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS				NS					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
L3	SW777	SW777	5/23/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U			
L3	SW777	SW777	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.98		0.78	U	0.78	U			
L3	SW777	SW777	5/25/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.75	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U			
L3	SW777	SW777	10/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	1		0.78	U	0.78	U			
L3	SW777	SW777	5/10/2002	0.62	U	0.62	U	0.62	U	0.62	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.3		0.62	U	4.2		1.2	U	1.2	U			
L3	SW777	SW777	10/29/2002	0.62	U	0.62	U	0.62	U	0.067	U+	0.33	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	1.2	U	1.2	U			
L3	SW777	SW777	5/9/2003	0.43	U	0.43	U	0.43	U	0.046	U+	0.23	U+	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.73		0.86	U	0.86	U			
L3	SW777	SW777	10/10/2003	0.42	U	0.42	U	0.42	U	0.045	U+	0.22	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.42	U	0.83	U	0.83	U			
L3	SW777	SW777	5/11/2004	0.53	U	0.53	U	0.53	U	0.057	U+	0.28	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	1.1	J	1.1	U	1.1	U			
L3	SW777	SW777	10/14/2004	0.73	U	0.73	U	0.73	U	0.23	U+	0.27	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.73	U	0.73	U	1.5	U	1.5	U			
L3	SW777	SW777	7/27/2005	0.46	U	0.46	U	0.46	U	0.037	U+	0.083	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.09	U+	0.91	U	0.91	U			
L3	SW777	SW777	10/26/2005	0.72	U	0.72	U	0.72	U	0.059	U+	0.13	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.72	U	0.14	U+	1.4	U	1.4	U			
L3	SW777	SW777	5/5/2006	0.55	U	0.55	U	0.55	U	0.045	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.11	U+	1.1	U	1.1	U			
L3	SW777	SW777	10/17/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U	0.78	U			
L3	SW777	SW777	4/27/2007	0.041	U+	0.035	U+	0.038	U+	0.034	U+	0.075	U+	0.037	U+	0.086	U+	0.14	U+	0.078	U+	0.086	U+	0.13	U+	0.034	U+	0.081	U+	0.068	U+	0.068	U+			
L3	SW777	SW777	10/17/2007	0.036	U+	0.023	U+	0.039	U+	0.063	U+	0.088	U+	0.061	U+	0.11	U+	0.095	U+	0.087	U+	0.087	U+	0.039	U+	0.033	U+	0.055	U+	0.081	U+	0.081	U+			
L3	SW777	SW777	5/20/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U	0.78	U			

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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L14	H-7	H-7	9/13/1995	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	1.56	U		
L14	H-7	H-7	7/27/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L14	H-7	H-7-DUP	7/28/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
L14	H-7	H-7	7/1/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
L14	H-7	H-7	11/1/1999	0.39	U/R	0.39	U*	0.39	U*	0.16	U*	0.31	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.39	U*	0.39	U*	2.2	J	0.78	U/R		
L14	H-7	H-7	5/22/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.83		0.78	U		
L14	H-7	H-7-DUP	5/22/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.76		0.78	U		
L14	H-7	H-7	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	1.3		0.78	U		
L14	H-7	H-7-DUP	10/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	1.4	U	0.78	U		
L14	H-7	H-7	5/25/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L14	H-7	H-7-DUP	5/25/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
L14	H-7	H-7	10/31/2001	0.66	U	0.66	U	0.66	U	0.66	U*	1.3	U*	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.66	U	0.66	U	0.67		1.3	U		
L14	H-7	H-7-DUP	10/31/2001	0.42	U	0.42	U	0.42	U	0.42	U*	0.85	U*	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.59		0.85	U		
L14	H-7	H-7	5/6/2002	0.51	U	0.51	U	0.51	U	0.51	U	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.51	U	0.51	U	1	U		
L14	H-7	H-7	10/30/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1.3		0.78	U		
L14	H-7	H-7	5/21/2003	0.6	U	0.6	U	0.6	U	0.065	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	1.2	U
L14	H-7	H-7	10/22/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.63		0.78	U		
L14	H-7	H-7	5/27/2004	0.5	U	0.5	U	0.5	U	0.054	U+	0.27	U+	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.5	U	0.5	U	1	U
L14	H-7	H-7	10/25/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	H-7	H-7	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L14	H-7	H-7	10/24/2005	0.62	U	0.62	U	0.62	U	0.051	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.3		1.2	U		
L14	H-7	H-7	5/8/2006	0.49	U	0.49	U	0.49	U	0.04	U	0.089	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.096	U+	0.98	U
L14	H-7	H-7	10/16/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L14	H-7	H-7	5/2/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
L14	H-7	H-7	10/15/2007	0.044	U+	0.027	U+	0.047	U+	0.076	U+	0.11	U+	0.074	U+	0.13	U+	0.11	U+	0.11	U+	0.11	U+	0.047	U+	0.04	U+	0.066	U+	0.099	U+		
L14	H-7	H-7	5/21/2008	0.47	U	0.47	U	0.47	U	0.47	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.94	U
L14	H-8	H-8	7/28/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200			
Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200			
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L14	MW508	MW508	8/2/1993	0.449	U	0.611	U	1.15		0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		130		1.08		840		1.56	U
L14	MW508	MW508	9/12/1995	0.449	U	0.611	U	2.33		0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		84		0.645	U	660		1.56	U
L14	MW508	MW508	7/28/1998	1.9	U	1.6	U	12.6		1.2	U	2.2	U	2.4	U	4	U	NA		NA		NA		97.4		1.4	U	462		4.2	U
L14	MW508	MW508	7/1/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	1.1		NA		NA		NA		26		0.39	U	79		0.78	U
L14	MW508	MW508	11/1/1999	0.39	U*	0.39	U*	0.39	U*	0.16	U*	0.31	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	110	D/J	0.39	U*	140	J	0.78	U*
L14	MW508	MW508	5/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	28	D	0.39	U	14	D	0.78	U
L14	MW508	MW508	10/20/2000	0.48	U	0.48	U	0.48	U	0.19	U	0.38	U	0.97		0.96	U	0.96	U	1.7		0.96	U	220	D	0.48	U	580	D	0.96	U
L14	MW508	MW508	5/25/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	49		0.39	U	270		0.78	U
L14	MW508	MW508	10/31/2001	0.49	U	0.49	U	0.49	U	0.49	U*	0.98	U*	0.98	U	0.98	U	0.98	U	1.4		0.98	U	140		0.49	U	290		0.98	U
L14	MW508	MW508	5/6/2002	0.41	U	0.41	U	0.41	U	0.41	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	10		0.41	U	13		0.82	U
L14	MW508	MW508	10/30/2002	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	1	U	0.91	U	91		0.46	U	230		0.91	U
L14	MW508	MW508-DUP	10/30/2002	0.39	U	0.39	U	0.39	U	0.042	U	0.21	U	0.92		0.78	U	0.78	U	1.8		0.78	U	140		0.39	U	300		0.78	U
L14	MW508	MW508	5/21/2003	0.61	U	0.61	U	0.61	U	0.066	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	25		0.61	U	16		1.2	U
L14	MW508	MW508	10/22/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	45		0.39	U	110		0.78	U
L14	MW508	MW508	5/27/2004	0.58	U	0.58	U	0.58	U	0.062	U+	0.31	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	37		0.58	U	110		1.2	U
L14	MW508	MW508	10/25/2004	0.49	U	0.49	U	0.49	U	0.15	U+	0.18	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	150		0.49	U	520		0.99	U
L14	MW508	MW508	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	33		0.39	U	170		0.78	U
L14	MW508	MW508	10/24/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.91		0.78	U	91		0.39	U	430		0.78	U
L14	MW508	MW508	5/8/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	2.1		0.39	U	1.4		0.78	U
L14	MW508	MW508	10/16/2006	0.46	U	0.46	U	0.46	U	0.038	U+	0.084	U+	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.46	U	0.091	U+	0.92	U
L14	MW508	MW508	5/2/2007	0.04	U+	0.034	U+	0.037	U+	0.033	U+	0.073	U+	0.036	U+	0.085	U+	0.14	U+	0.076	U+	0.085	U+	0.13	U+	0.033	U+	0.08	U+	0.067	U+
L14	MW508	MW508-DUP	5/2/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
L14	MW508	MW508	10/15/2007	0.033	U+	0.021	U+	0.036	U+	0.058	U+	0.081	U+	0.057	U+	0.1	U+	0.088	U+	0.08	U+	0.08	U+	0.036	U+	0.031	U+	0.051	U+	0.075	U+
L14	MW508	MW508	5/20/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U



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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L14	MW511	MW511	9/13/1995	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		11.1		0.645	U	340		1.56	U
L14	MW511	MW511	7/28/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		4.7		0.14	U	92		0.42	U
L14	MW511	MW511	7/1/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
L14	MW511	MW511	11/1/1999	0.39	U*	0.39	U*	0.39	U*	0.16	U*	0.31	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	3.8	J	0.39	U*	39	J	0.78	U*
L14	MW511	MW511	5/22/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	7.8	D	0.39	U	100	D	0.78	U
L14	MW511	MW511	10/20/2000	0.57	U	0.57	U	0.57	U	0.23	U	0.46	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	16	D	0.57	U	190	D	1.1	U
L14	MW511	MW511	5/25/2001	0.55	U	0.55	U	0.55	U	0.55	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	2.4		0.55	U	28		1.1	U
L14	MW511	MW511	10/31/2001	0.58	U	0.58	U	0.58	U	0.58	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	22		0.58	U	240		1.2	U
L14	MW511	MW511	5/6/2002	0.57	U	0.57	U	0.57	U	0.57	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	0.57	U	1.1	U
L14	MW511	MW511	10/30/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1.6		0.39	U	9.8		0.78	U
L14	MW511	MW511	5/21/2003	0.6	U	0.6	U	0.6	U	0.065	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	6		0.6	U	55		1.2	U
L14	MW511	MW511	10/22/2003	0.49	U	0.49	U	0.49	U	0.052	U+	0.26	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	17		0.49	U	160		0.98	U
L14	MW511	MW511	5/27/2004	0.44	U	0.44	U	0.44	U	0.048	U+	0.23	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.44	U	0.88	U
L14	MW511	MW511-DUP	5/27/2004	0.48	U	0.48	U	0.48	U	0.052	U	0.26	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.48	U	0.96	U
L14	MW511	MW511	10/25/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	13		0.39	U	120		0.78	U
L14	MW511	MW511	7/27/2005	0.4	U	0.4	U	0.4	U	0.033	U+	0.073	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	12		0.4	U	130		0.81	U
L14	MW511	MW511	10/24/2005	0.6	U	0.6	U	0.6	U	0.049	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	9.8		0.6	U	80		1.2	U
L14	MW511	MW511	5/8/2006	0.42	U	0.42	U	0.42	U	0.035	U+	0.076	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	1.6		0.42	U	5.5		0.83	U
L14	MW511	MW511	10/16/2006	0.6	U	0.6	U	0.6	U	0.049	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	14		0.6	U	110		1.2	U
L14	MW511	MW511	5/2/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
L14	MW511	MW511	10/15/2007	0.027	U+	0.017	U+	0.029	U+	0.048	U+	0.067	U+	0.047	U+	0.084	U+	0.072	U+	0.066	U+	0.066	U+	19		0.025	U+	170		0.062	U+
L14	MW511	MW511	5/20/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

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Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5- Trinitrobenzene		1,3- Dinitrobenzene		2,4,6- Trinitrotoluene (TNT)		2,4- Dinitrotoluene		2,6- Dinitrotoluene		2-Amino-4,6- Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6- Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L14	MW512	MW512	9/12/1995	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		21.7		0.645	U	35.3		1.56	U
L14	MW512	MW512	7/28/1998	1.9	U	1.6	U	12.8		1.2	U	2.2	U	2.4	U	4	U	NA		NA		NA		110		1.4	U	256		4.2	U
L14	MW512	MW512	7/1/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	2		NA		NA		NA		42		0.39	U	58		0.78	U
L14	MW512	MW512-DUP	7/1/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	1.9		NA		NA		NA		43		0.39	U	61		0.78	U
L14	MW512	MW512	11/1/1999	0.39	U*	0.39	U*	0.39	U*	0.16	U*	0.31	U*	2.3	J	0.78	U*	0.78	U*	3.3	J	0.78	U*	110	J	0.39	U*	260	J	0.78	U*
L14	MW512	MW512-DUP	11/1/1999	0.39	U*	0.39	U*	0.39	U*	0.16	U*	0.31	U*	2.3	J	0.78	U*	0.78	U*	3.1	J	0.78	U*	71	J	0.39	U*	170	J	0.78	U*
L14	MW512	MW512	5/22/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	1.6		0.78	U	0.78	U	2.1		0.78	U	72	D	0.39	U	140	D	0.78	U
L14	MW512	MW512	10/20/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	2.3		0.78	U	0.78	U	3.2		0.78	U	98	D	0.39	U	210	D	0.78	U
L14	MW512	MW512	1/31/2001	0.73	U	0.73	U	0.73	U	0.73	U*	1.5	U*	2.2		1.5	U	1.5	U	3.1		1.5	U	87		0.73	U	170		1.5	U
L14	MW512	MW512	5/25/2001	0.65	U	0.65	U	0.65	U	0.65	U*	1.3	U*	1.4		1.3	U	1.3	U	2		1.3	U	70		0.65	U	150		1.3	U
L14	MW512	MW512	5/6/2002	0.52	U	0.52	U	0.52	U	0.52	U	1	U	1	U	1	U	1	U	1	U	1	U	21		0.52	U	37		1	U
L14	MW512	MW512	10/30/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	2.3		0.78	U	0.78	U	3.2		0.78	U	94		0.39	U	190		0.78	U
L14	MW512	MW512	5/21/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	1.4		0.78	U	0.78	U	2.1		0.78	U	61		0.39	U	190		0.78	U
L14	MW512	MW512	10/22/2003	0.52	U	0.52	U	0.52	U	0.056	U+	0.28	U+	2.1		1	U	1	U	3.1		1	U	86		0.52	U	210		1	U
L14	MW512	MW512	5/27/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	8.9		0.39	U	21		0.78	U
L14	MW512	MW512	10/26/2004	0.51	U	0.51	U	0.51	U	0.16	U+	0.19	U+	2.1		1	U	1	U	3.1		1	U	85		0.51	U	230		1	U
L14	MW512	MW512	7/27/2005	0.47	U	0.47	U	0.47	U	0.039	U+	0.086	U+	2.3		0.95	U	0.95	U	3.4		0.95	U	90		0.47	U	300		0.95	U
L14	MW512	MW512	10/24/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	2		0.78	U	0.78	U	2.9		0.78	U	90	J	0.39	U	190	J	0.78	U
L14	MW512	MW512	5/8/2006	0.75	U	0.75	U	0.75	U	0.062	U+	0.14	U+	1.5	U	1.5	U	1.5	U	2.3		1.5	U	76		0.75	U	290		1.5	U
L14	MW512	MW512	10/16/2006	0.55	U	0.55	U	0.55	U	0.045	U+	0.099	U+	2.7		1.1	U	1.1	U	3.8		1.1	U	91		0.55	U	290		1.1	U
L14	MW512	MW512	5/1/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	7.8		0.032	U+	11		0.065	U+
L14	MW512	MW512	10/15/2007	0.036	U+	0.022	U+	0.038	U+	0.062	U+	0.087	U+	1.8		0.11	U+	0.093	U+	2.6		0.086	U+	84		0.033	U+	200		0.08	U+
L14	MW512	MW512	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	4.6	Jl	0.39	U	10		0.78	U
L14	MW512	MW512-DUP	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	4.5		0.39	U	11		0.78	U
L14	MW600	MW600	8/5/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
L14	MW600	MW600	5/21/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L14	MW600	MW600	10/31/2001	0.4	U	0.4	U	0.4	U	0.4	U	0.81	U*	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.4	U	0.81	U
L14	MW600	MW600	5/6/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L14	MW600	MW600	5/21/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW600	MW600	10/23/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW600	MW600	5/27/2004	0.53	U	0.53	U	0.53	U	0.057	U+	0.28	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U
L14	MW600	MW600	10/26/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
L14	MW600	MW600	7/27/2005	0.58	U	0.58	U	0.58	U	0.048	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.12	U+	1.2	U
L14	MW600	MW600	5/5/2006	0.46	U	0.46	U	0.46	U	0.038	U+	0.084	U+	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.46	U	0.091	U+	0.92	U
L14	MW600	MW600	10/18/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
L14	MW600	MW600	5/2/2007	0.041	U+	0.035	U+	0.038	U+	0.034	U+	0.075	U+	0.037	U+	0.086	U+	0.14	U+	0.078	U+	0.086	U+	0.13	U+	0.034	U+	0.081	U+	0.068	U+
L14	MW600	MW600	5/21/2008	0.42	U	0.42	U	0.42	U	0.42	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

Compounds				1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L14	MW601	MW601	8/5/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
L14	MW601	MW601	11/1/1999	0.39	U*	0.39	U*	0.39	U*	0.16	U*	0.31	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.39	U*	0.39	U*	0.39	U*	0.78	U*
L14	MW601	MW601	10/20/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L14	MW601	MW601	10/31/2001	0.57	U	0.57	U	0.57	U	0.57	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	0.57	U	1.1	U
L14	MW601	MW601	10/30/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW601	MW601	10/22/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW601	MW601	10/26/2004	0.43	U	0.43	U	0.43	U	0.13	U+	0.16	U+	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.43	U	0.86	U
L14	MW601	MW601	7/27/2005	0.49	U	0.49	U	0.49	U	0.04	U+	0.089	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.096	U+	0.98	U
L14	MW601	MW601	10/24/2005	0.71	U	0.71	U	0.71	U	0.058	U+	0.13	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.71	U	0.14	U+	1.4	U
L14	MW601	MW601	10/16/2006	0.48	U	0.48	U	0.48	U	0.039	U+	0.088	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.095	U+	0.96	U
L14	MW601	MW601	10/15/2007	0.041	U+	0.026	U+	0.044	U+	0.072	U+	0.1	U+	0.071	U+	0.13	U+	0.11	U+	0.1	U+	0.1	U+	0.044	U+	0.038	U+	0.063	U+	0.094	U+
L14	MW601	MW601-DUP	10/15/2007	0.029	U+	0.018	U+	0.031	U+	0.051	U+	0.072	U+	0.05	U+	0.09	U+	0.077	U+	0.07	U+	0.07	U+	0.031	U+	0.027	U+	0.044	U+	0.066	U+
L14	MW601	MW601	5/21/2008	0.49	U	0.49	U	0.49	U	0.49	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.98	U
L14	MW602	MW602	7/1/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
L14	MW602	MW602	11/1/1999	0.39	U*	0.39	U*	0.39	U*	0.16	U*	0.31	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.78	U*	0.39	U*	0.39	U*	0.39	U*	0.78	U*
L14	MW602	MW602	5/19/2000	0.48	U	0.48	U	0.48	U	0.19	U	0.38	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.48	U	0.48	U	0.96	U
L14	MW602	MW602	10/20/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L14	MW602	MW602	5/25/2001	0.72	U	0.72	U	0.72	U	0.72	U*	1.4	U*	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.72	U	0.72	U	0.72	U	1.4	U
L14	MW602	MW602	10/31/2001	0.58	U	0.58	U	0.58	U	0.58	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	0.58	U	1.2	U
L14	MW602	MW602	5/6/2002	0.55	U	0.55	U	0.55	U	0.55	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U
L14	MW602	MW602-DUP	5/6/2002	0.44	U	0.44	U	0.44	U	0.44	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.44	U	0.44	U	0.87	U
L14	MW602	MW602	10/30/2002	0.42	U	0.42	U	0.42	U	0.046	U+	0.22	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U
L14	MW602	MW602	5/21/2003	0.55	U	0.55	U	0.55	U	0.059	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U		
L14	MW602	MW602	10/22/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW602	MW602	5/27/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW602	MW602	10/25/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW602	MW602	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L14	MW602	MW602-DUP	7/27/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U+	0.78	U
L14	MW602	MW602	10/24/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L14	MW602	MW602-DUP	10/24/2005	0.53	U	0.53	U	0.53	U	0.044	U+	0.097	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.11	U+	1.1	U
L14	MW602	MW602	5/8/2006	0.53	U	0.53	U	0.53	U	0.043	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.1	U+	1.1	U
L14	MW602	MW602-DUP	5/8/2006	0.47	U	0.47	U	0.47	U	0.039	U+	0.086	U+	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.47	U	0.094	U+	0.95	U
L14	MW602	MW602	10/16/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L14	MW602	MW602-DUP	10/16/2006	0.49	U	0.49	U	0.49	U	0.041	U+	0.09	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.098	U+	0.99	U
L14	MW602	MW602	5/2/2007	0.044	U+	0.037	U+	0.041	U+	0.036	U+	0.08	U+	0.04	U+	0.093	U+	0.16	U+	0.084	U+	0.093	U+	0.14	U+	0.036	U+	0.087	U+	0.074	U+
L14	MW602	MW602	10/15/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
L14	MW602	MW602	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L14	MW603	MW603	7/1/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
L14	MW603	MW603	11/1/1999	0.39	U*	0.39	U*	0.39	U*	0.16	U*	0.31	U*	0.78	U*	1.1	J	0.78	U*	0.78	U*	1.1	J	0.39	U*	0.39	U*	0.39	U*	0.78	U*
L14	MW603	MW603	5/19/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L14	MW603	MW603	10/20/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L14	MW603	MW603	5/25/2001	0.58	U	0.58	U	0.58	U	0.58	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	0.58	U	1.2	U
L14	MW603	MW603	10/31/2001	0.6	U	0.6	U	0.6	U	0.6	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	0.6	U	1.2	U
L14	MW603	MW603	5/6/2002	0.46	U	0.46	U	0.46	U	0.46	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.46	U	0.91	U
L14	MW603	MW603	10/30/2002	0.4	U	0.4	U	0.4	U	0.43	U+	0.21	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.81	U
L14	MW603	MW603	5/21/2003	0.48	U	0.48	U	0.48	U	0.052	U+	0.26	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.48	U	0.96	U
L14	MW603	MW603	10/23/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW603	MW603	5/27/2004	0.64	U	0.64	U	0.64	U	0.069	U+	0.34	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.64	U	1.3	U
L14	MW603	MW603	10/25/2004	0.61	U	0.61	U	0.61	U	0.19	U+	0.22	U+	1.2	U	1.9	U	1.2	U	1.2	U	1.2	U	1.2	U	0.61	U	0.61	U	1.2	U
L14	MW603	MW603	7/27/2005	0.47	U	0.47	U	0.47	U	0.039	U+	0.086	U+	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.47	U	0.094	U+	0.95	U
L14	MW603	MW603	10/24/2005	0.52	U	0.52	U	0.52	U	0.043	U+	0.095	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.1	U+	1	U
L14	MW603	MW603	5/8/2006	0.62	U	0.62	U	0.62	U	0.051	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.12	U+	1.2	U
L14	MW603	MW603	10/16/2006	0.58	U	0.58	U	0.58	U	0.047	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.11	U+	1.2	U
L14	MW603	MW603	5/2/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
L14	MW603	MW603	10/15/2007	0.049	U+	0.031	U+	0.052	U+	0.085	U+	0.12	U+	0.083	U+	0.15	U+	0.13	U+	0.12	U+	0.12	U+	0.052	U+	0.045	U+	0.074	U+	0.11	U+
L14	MW603	MW603	5/21/2008	0.57	U	0.57	U	0.57	U	0.57	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	1.1	U
L14	MW604	MW604	7/1/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
L14	MW604	MW604	11/1/1999	0.39	U*	0.39	U*	0.39	U*	0.16	U*	0.31	U*	0.78	U*	1.8	J	0.78	U*	0.78	U*	1.1	J	0.39	U*	0.39	U*	0.39	U*	0.78	U*
L14	MW604	MW604	5/22/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L14	MW604	MW604	10/20/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L14	MW604	MW604	5/25/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
L14	MW604	MW604	10/31/2001	0.43	U	0.43	U	0.43	U	0.43	U*	0.86	U*	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.43	U	0.43	U	0.86	U
L14	MW604	MW604	5/6/2002	0.7	U	0.7	U	0.7	U	0.7	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.7	U	0.7	U	1.4	U
L14	MW604	MW604	10/30/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW604	MW604	5/21/2003	0.44	U	0.44	U	0.44	U	0.047	U+	0.23	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.44	U	0.87	U
L14	MW604	MW604	10/23/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW604	MW604	5/27/2004	0.61	U	0.61	U	0.61	U	0.066	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.61	U	0.61	U	1.2	U
L14	MW604	MW604	10/25/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
L14	MW604	MW604	7/21/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L14	MW604	MW604	10/24/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
L14	MW604	MW604	5/8/2006	0.45	U	0.45	U	0.45	U	0.037	U+	0.082	U+	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.089	U+	0.9	U
L14	MW604	MW604	10/16/2006	0.61	U	0.61	U	0.61	U	0.05	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.61	U	0.12	U+	1.2	U
L14	MW604	MW604	5/2/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
L14	MW604	MW604	10/15/2007	0.036	U+	0.022	U+	0.038	U+	0.062	U+	0.087	U+	0.061	U+	0.11	U+	0.093	U+	0.086	U+	0.086	U+	0.038	U+	0.033	U+	0.054	U+	0.08	U+
L14	MW604	MW604	5/21/2008	0.45	U	0.45	U	0.45	U	0.45	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.45	U	0.9	U

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Compounds				1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl				
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
				Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																
				Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																
				Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
L14	SW576	SW576	7/28/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		1.1		0.14	U	3.5		0.42	U			
L14	SW576	SW576	5/6/2002	0.46	U	0.46	U	0.46	U	0.46	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U					
L14	SW576	SW576	5/8/2003	0.59	U	0.59	U	0.59	U	0.064	U+	0.31	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	7.3		0.59	U	31		1.2	U			
L14	SW576	SW576	5/12/2004	0.4	U	0.4	U	0.4	U	0.043	U+	0.21	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	5.1		0.4	U	24		0.81	U			
L14	SW576	SW576	5/5/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1.7		0.39	U	8.6		0.78	U			
L14	SW576	SW576	10/17/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1		0.39	U	2.9		0.78	U			
L14	SW576	SW576	5/2/2007	0.045	U+	0.038	U+	0.041	U+	0.037	U+	0.082	U+	0.04	U+	0.094	U+	0.16	U+	0.085	U+	0.094	U+	0.14	U+	0.037	U+	1.4		0.075	U+			
L14	SW576	SW576	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1.4		0.39	U	4.4		0.78	U			
L14	SW584	SW584	7/28/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	3.3		0.42	U			
L14	SW584	SW584	5/6/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1.6		0.39	U	7.3		0.78	U			
L14	SW584	SW584	5/9/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	4.4		0.39	U	20		0.78	U			
L14	SW584	SW584	5/12/2004	0.49	U	0.49	U	0.49	U	0.053	U+	0.26	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	2.1		0.49	U	8.7		0.99	U			
L14	SW584	SW584	5/5/2006	0.42	U	0.42	U	0.42	U	0.035	U+	0.077	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	1.7		0.42	U	8.7		0.85	U			
L14	SW584	SW584	10/17/2006	0.44	U	0.44	U	0.44	U	0.036	U+	0.079	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	2.2		0.87	U			
L14	SW584	SW584	5/2/2007	0.053	U+	0.045	U+	0.049	U+	0.043	U+	0.096	U+	0.047	U+	0.11	U+	0.18	U+	0.1	U+	0.11	U+	0.16	U+	0.043	U+	1.3		0.088	U+			
L14	SW584	SW584	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1.5		0.39	U	4.9		0.78	U			
L14	SW587	SW587	7/1/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		2.2		0.39	U	10		0.78	U			
L14	SW587	SW587	11/1/2001	0.55	U	0.55	U	0.55	U	0.55	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.58		1.1	U			
L14	SW587	SW587	5/6/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	1.5		0.39	U	6.9		0.78	U			
L14	SW587	SW587	5/9/2003	0.58	U	0.58	U	0.58	U	0.062	U+	0.31	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	2.9		0.58	U	13		1.2	U			
L14	SW587	SW587	5/12/2004	0.45	U	0.45	U	0.45	U	0.048	U+	0.24	U+	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	1.9		0.45	U	8.5		0.9	U			
L14	SW587	SW587	7/27/2005	0.41	U	0.41	U	0.41	U	0.034	U+	0.075	U+	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.081	U+	0.82	U			
L14	SW587	SW587	5/5/2006	0.52	U	0.52	U	0.52	U	0.043	U+	0.095	U+	1	U	1	U	1	U	1	U	1	U	1.7		0.52	U	9.3		1	U			
L14	SW587	SW587	10/17/2006	0.43	U	0.43	U	0.43	U	0.035	U+	0.078	U+	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	2.3		0.86	U			
L14	SW587	SW587	5/2/2007	0.064	U+	0.054	U+	0.059	U+	0.052	U+	0.12	U+	0.057	U+	0.13	U+	0.22	U+	0.12	U+	0.13	U+	0.2	U+	0.052	U+	1.4		0.11	U+			
L14	SW587	SW587	10/17/2007	0.039	U+	0.025	U+	0.042	U+	0.068	U+	0.096	U+	0.067	U+	0.12	U+	0.1	U+	0.094	U+	0.094	U+	0.042	U+	0.036	U+	0.059	U+	0.088	U+			
L14	SW587	SW587-DUP	10/17/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+			
L14	SW587	SW587	5/21/2008	0.43	U	0.43	U	0.43	U	0.43	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	1.7		0.43	U	5.6		0.86	U			



**GRU 1**  
Metals and Indicator Parameters

**Summary of Historical Analytical Results for Indicator Parameters in Groundwater**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, IL**

Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L1	MW131	7/23/1998	0.02	U	365		1.85		39900		NA		3.5		63.4		2		0.36	
L1	MW131	10/23/2003	0.05	U	490		0.29		NA		0.02	U	NA		37		1	U	7.6	
L1	MW171	11/13/1991	NA		NA		NA		240		NA		NA		28		NA		NA	
L1	MW172	8/23/1991	NA		NA		NA		3800		NA		NA		61.7		NA		NA	
L1	MW172	7/23/1998	0.02	U	292		14		7050		NA		3.5		62.5		2	U	0.17	
L1	MW172	10/23/2003	0.05	U	430		0.2	U	NA		0.02	U	NA		61		3.2		0.11	J
L1	MW173	8/23/1991	NA		NA		NA		1600		NA		NA		80.8		NA		NA	
L1	MW173	7/27/1998	0.02	U	298		1.29		5	U	NA		640		38.2		4		0.15	
L1	MW173	10/23/2003	0.05	U	400		0.14	J	NA		0.02	U	NA		56		1	U	0.32	
L1	MW173-DUP	10/23/2003	0.05	U	440		0.14	J	NA		0.02	U	NA		63		1	U	0.11	J
L1	MW174	8/23/1991	NA		NA		NA		63.2		NA		NA		82.4		NA		NA	
L1	MW174	7/23/1998	0.02	U	285		1.49		65		NA		NA		58.6		2	U	0.1	U
L1	MW174	10/23/2003	0.05	U	420		0.14	J	NA		0.02	U	NA		58		1	U	0.26	
L1	MW175	11/13/1991	NA		NA		NA		1400		NA		NA		54.6		NA		NA	
L1	MW177	8/23/1991	NA		NA		NA		240		NA		NA		89.1		NA		NA	
L1	MW178	8/21/1991	NA		NA		NA		6400		NA		NA		58.7		NA		NA	
L1	MW401	9/12/1991	NA		NA		NA		10	U	NA		NA		86.7		NA		NA	
L1	MW401	7/23/1998	0.381		365		1.5		93		NA		NA		64		2	U	0.35	
L1	MW401	10/23/2003	0.05	U	400		0.16	J	NA		0.02	U	NA		72		1	U	0.37	
L1	MW610	10/23/2003	0.05	U	370		0.2	U	NA		0.02	U	NA		52		1	U	0.26	
L1	MW700	7/23/1998	0.068		288		1.54		6600		NA		1500		45.4		4		0.1	U
L1	WES1	10/23/2003	0.05	U	310		0.2	U	NA		0.006	J	NA		58	J	1	U	0.26	
L1	WES3	10/23/2003	0.05	U	400		0.2	U	NA		0.02	U	NA		67		4.2		0.3	

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L2	MW132	6/4/1981	NA		NA		NA		NA		68	U	NA		NA		5.9		1080	
L2	MW132	9/11/1991	NA		NA		123		NA		58.6		NA		NA		4.01	U	38.8	U
L2	MW133	6/5/1981	NA		NA		NA		NA		68	U	NA		NA		5.5	U	100	U
L2	MW133	9/10/1991	NA		NA		72.7		NA		63.4		NA		NA		4.28		38.8	U
L2	MW133	7/27/1998	0.02	U	336		1.46		50	U	3.8		1500		0.1		1.34		662	
L2	MW133	10/24/2003	0.05	U	370		0.22		NA		0.02	U	NA		0.63		1.1		580	
L2	MW135	6/9/1981	NA		NA		NA		NA		126		NA		NA		NA		100	U
L2	MW135	9/12/1991	NA		NA		10	U	NA		103		NA		NA		8.3		38.8	U
L2	MW135	7/23/1998	0.1		290		1.18		110		2100		3.5		0.1	U	14.7		66.5	
L2	MW404	9/6/1991	NA		NA		147		NA		NA		54		NA		5.71		4.01	U
L2	MW404	7/27/1998	0.02	U	271		1.03		50	U	1300		3.5		2		19.5		100	U
L2	MW404	7/14/1999	NA		NA		NA		NA		NA		NA		NA		NA		0.5	U
L2	MW404-DUP	7/14/1999	NA		NA		NA		NA		NA		NA		NA		NA		0.5	U
L2	MW404	10/22/1999	NA		NA		NA		NA		NA		NA		NA		NA		0.4	U
L2	MW404	10/24/2003	0.05	U	330		0.19	J	NA		0.02	U	NA		0.17	J	2		50	U
L2	MW405	9/6/1991	NA		NA		143		NA		NA		47.1		NA		6.88		4.01	U
L2	MW405	7/27/1998	0.021		288		3.7		50	U	870		370		2	U	0.27		1.97	
L2	MW405	7/14/1999	NA		NA		NA		NA		NA		NA		NA		NA		0.5	U
L2	MW405	10/22/1999	NA		NA		NA		NA		NA		NA		NA		NA		0.4	U
L2	MW405-DUP	10/22/1999	NA		NA		NA		NA		NA		NA		NA		NA		0.4	U
L2	MW405	10/23/2003	0.05	U	300		0.22		NA		0.02	U	NA		0.035	J	NA		51	J
L2	MW406	9/6/1991	NA		NA		147		NA		NA		55.1		NA		NA		1	U
L2	MW406	7/13/1998	NA		NA		NA		NA		NA		NA		NA		NA		0.24	
L2	MW406	7/27/1998	0.02	U	306		1.25		50	U	2000		110		2	U	0.2		7.24	
L2	MW406	10/24/2003	0.05	U	360		0.15	J	NA		0.02	U	NA		0.1	U	NA		39	J
L2	MW407	9/9/1991	NA		NA		520		NA		NA		71.1		NA		NA		1	U
L2	MW407	7/27/1998	0.02	U	306		1.59		50	U	1400		320		4		0.1	U	9.04	
L2	MW407	10/24/2003	0.05	U	380		0.14	J	NA		0.02	U	NA		0.05	J	NA		19	J
L2	MW501	7/14/1999	NA		NA		NA		NA		NA		NA		NA		NA		1	U
L2	MW501	10/21/1999	NA		NA		NA		NA		NA		NA		NA		NA		0.17	J
L2	MW620	10/27/2003	0.046	J	330		0.53		NA		0.02	U	NA		0.1	U	NA		NA	
L2	MW620-DUP	10/27/2003	0.05	U	350		0.57		NA		0.02	U	NA		0.1	U	NA		83	
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U	NA		0.8	J
L2	MW621	10/24/2003	0.025	J	410		0.26		NA		0.02	U	NA		0.1	U				

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L3	MW136	6/5/1981	NA		NA		NA		NA		NA		142	NA	NA	NA	NA		36	
L3	MW136	9/11/1991	NA		NA		24.2		NA		NA		162	NA	NA	NA	3.57	4.01 U	102	823
L3	MW410	8/3/1993	NA		NA		440		NA		NA		53.6	NA	NA	NA	4.46	4.01 U	62	174
L3	MW410	7/27/1998	0.02	U	375	1.66	50 U		NA		1400		250	45.5	2	0.1 U	1.83	NA	2350	309
L3	MW410	7/12/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	0.5 U	NA	NA
L3	MW410	10/21/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	0.4	NA	NA
L3	MW410	10/27/2003	0.05	U	400	0.35	NA		0.02	U	NA		0.052	J	0	U	90	NA	1700	1400
L3	MW410-DUP	10/27/2003	0.05	U	390	0.2	U		NA		NA		0.077	J	NA		86	NA	1700	1400
L3	MW411	11/8/1991	NA		NA		10.1		NA		NA		158	NA	NA	NA	3.03 U	4.01 U	265	135
L3	MW411	7/27/1998	0.02	U	373	1.9	346		NA		NA		46.5	8	0.1 U	1.12	NA	NA	182	272
L3	MW411	7/12/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	1	NA	NA
L3	MW411	10/21/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	0.4	NA	NA
L3	MW412	11/8/1991	NA		NA		1900		NA		NA		75.6	NA	NA	NA	6.25	4.01 U	1600	173
L3	MW412	7/27/1998	0.02	U	271	1.41	50 U		NA		480		68	4	0.01 U	6.64	NA	NA	100	5 U
L3	MW412	7/12/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	0.5 U	NA	NA
L3	MW412	10/21/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	0.4	NA	NA
L3	MW412	10/28/2003	0.05	U	390	0.17	J		NA		0.02 U		1.1	NA	NA	NA	100	1.3	0.4	50 U
L3	MW630	7/12/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	0.5 U	NA	NA
L3	MW630	10/21/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	0.4 U	NA	NA
L3	MW630	10/28/2003	0.026	J	380	0.23	NA		0.02 U		NA		0.15	NA	44	0.6	J	51	1.2	NA
L3	MW631	7/12/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	0.5 U	NA	NA
L3	MW631	10/20/1999	NA		NA		NA		NA		NA		NA	NA	NA	NA	NA	0.4 U	NA	NA
L3	MW631	10/28/2003	0.05	U	380	0.36	NA		0.02 U		NA		0.048	J	NA		41	1	0.54	1.1
L3	MW633	10/27/2003	0.05	U	380	0.2	U		NA		0.02 U		NA	0.53	NA	110	1.4	0.25	2	NA

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Compounds			Orthophosphate		Alkalinity		Ammonia		Nitrate/Nitrite		Nitrate (NO2)		Carbon Dioxide		Nitrate (NO3)		Methane		Sulfate (SO4)		Sulfide		TKN		TOC		Antimony		Cadmium		Iron		Diss. Iron		Manganese	
Unit			mg/l		mg/l		mg/l		ug/l		mg/l		mg/l		ug/l		mg/l		mg/l		mg/l		mg/l		mg/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Risk Based RG			NS		NS		NS		10000		1000		NS		NS		NS		400		NS		NS		NS		6		5		500		5000		150	
Surface Water RG			NS		NS		NS		NS		NS		NS		NS		NS		500		NS		NS		NS		NS		NS		NS		NS		NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
L14	H-7	7/27/1998	0.02	U	258		0.97		63		NA		500		NA		0.24	U	11.3		2	U	0.1	U	14.3		NA		NA		100	U	NA		5	U
L14	H-7	10/22/2003	0.05	U	410		0.2	U	NA		0.02	U	NA		0.15		NA		17		1	U	0.27		1.8		NA		NA		50	U	50	U	NA	
L14	H-8	7/28/1998	0.02	U	308		1.36		51		NA		1500		NA		3.5		65		2	U	0.1	U	4.44		NA		NA		100	U	NA		5	U
L14	MW508	7/28/1998	0.02	U	310		1.2		50	U	NA		1700		NA		4.9		124		2	U	0.17		6.42		NA		NA		100	U	NA		437	
L14	MW508	10/22/2003	0.05	U	360		0.2	U	NA		0.02	U	NA		0.079	J	NA		63		1	U	0.26		1.7		NA		NA		440		50	U	NA	
L14	MW511	7/28/1998	0.02	U	290		1.67		386		NA		1600		NA		0.24	U	43.9		2	U	0.1	U	9.43		NA		NA		100	U	NA		14.4	
L14	MW511	10/22/2003	0.05	U	360		0.2	U	NA		0.02	U	NA		1.6		NA		51		1	U	0.25		1.5		NA		NA		230		50	U	NA	
L14	MW512	10/22/2003	0.05	U	300		0.2	U	NA		0.02	U	NA		2.7		NA		55		1	U	0.24		1.4		NA		NA		50	U	50	U	NA	
L14	MW600	8/5/1998	0.02	U	292		3.95		61		NA		NA		NA		NA		68.5		2	U	3		31.5		NA		NA		739		NA		114	
L14	MW600	10/23/2003	0.05	U	340		0.2	U	NA		0.02	U	NA		0.049	J	NA		38		1	U	0.27		1.7		NA		NA		130		50	U	NA	
L14	MW601	10/22/2003	0.05	U	330		0.2	U	NA		0.02	U	NA		0.084	J	NA		69		1	U	0.31		1.6		NA		NA		1200		650		NA	
L14	MW602	10/22/2003	0.05	U	300		0.2	U	NA		0.02	U	NA		0.1	U	NA		50		1	U	0.25		1.3		NA		NA		1100		950		NA	
L14	MW603	10/23/2003	0.05	U	310		0.2	U	NA		0.02	U	NA		0.049	J	NA		44		1	U	0.2	J	1.6		NA		NA		270		170		NA	
L14	MW604	10/23/2003	0.05	U	310		0.2	U	NA		0.02	U	NA		0.037	J	NA		43		1	U	0.25		1.3		NA		NA		50	U	50	U	NA	



**GRU 1**  
Other Analyses  
Volatile Organic Compounds

**Summary of Historical Analytical Results for Volatile Organic Compounds in Groundwater  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

Compounds			1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
L1	MW131	11/15/1985	0.8	U	3	U	0.8	U	NA		NA		NA		3	U	NA		3	U	3	U	NA		3	U	NA		3	U	NA		NA		NA			
L1	MW131	04/22/1986	0.8	U	3	U	0.8	U	NA		NA		NA		3	U	NA		3	U	3	U	NA		3	U	NA		3	U	NA		NA		NA			
L2	MW132	09/11/1991	0.5	U	0.68	U	0.75		0.5	U	6.4	U	13	U	0.5	U	1.8		0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L2	MW133	09/10/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.61		0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L2	MW135	09/12/1991	0.62		0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	2.2		0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L2	MW404	09/06/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L2	MW405	09/06/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	1.6		0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L2	MW406	09/09/1991	0.5	U	0.68	U	1.8		0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L2	MW407	09/09/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L3	MW136	09/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	2.4		0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L3	MW410	08/03/1993	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L3	MW411	11/08/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
L3	MW412	11/08/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		

## **GRU 2**

### Explosives

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl				
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l				
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																				
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																				
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																				
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M1	MW104	MW104	5/20/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U	
M1	MW104	MW104	11/12/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U	U		
M1	MW104	MW104	4/25/1986	1.4	U	23	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U	U		
M1	MW104	MW104	7/19/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		3.76	U	3.03	U	U	U	U		
M1	MW104	MW104	10/5/1988	NA		NA		NA		10	U	10	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		
M1	MW104	MW104	8/2/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U	U	U	
M1	MW104	MW104	7/15/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U	U	U	
M1	MW105	MW105	5/20/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U	
M1	MW105	MW105	11/12/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U	U	U	
M1	MW105	MW105	4/25/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U	U	U	
M1	MW105	MW105	7/19/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		3.76	U	3.03	U	U	U	U	U	
M1	MW105	MW105	10/5/1988	NA		NA		NA		10	U	10	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		
M1	MW105	MW105	8/2/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U	U	U	
M1	MW105	MW105	5/7/1997	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	0.158	U	0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	1.56	U	U	U	
M1	MW105	MW105	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U	U	U	
M1	MW106	MW106	5/22/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U	
M1	MW106	MW106	11/12/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U	U	U	
M1	MW106	MW106	4/25/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U	U	U	
M1	MW106	MW106	7/19/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		3.76	U	3.03	U	U	U	U	U	
M1	MW106	MW106	10/5/1988	NA		NA		NA		10	U	10	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		
M1	MW106	MW106	8/2/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.608		NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U	U	U	
M1	MW106	MW106	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U	U	U	
M1	MW107	MW107	5/21/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U	
M1	MW107	MW107	11/14/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U	U	U	
M1	MW107	MW107	4/25/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U	U	U	
M1	MW107	MW107	7/19/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		3.76	U	3.03	U	U	U	U	U	
M1	MW107	MW107	10/6/1988	NA		NA		NA		10	U	10	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		
M1	MW107	MW107	8/2/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U	U	U	
M1	MW107	MW107	7/15/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U	U	U	
M1	MW201	MW201	7/18/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		3.76	U	3.03	U	U	U	U	U	
M1	MW201	MW201	10/5/1988	NA		NA		NA		10	U	10	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		
M1	MW201	MW201	8/2/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U	U	U	U
M1	MW201	MW201	7/15/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U	U	U	
M1	MW231	MW231	7/20/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.72		NA		2.79	U	NA		NA		NA		NA		3.76	U	3.03	U	U	U	U	U	
M1	MW231	MW231	10/4/1988	NA		NA		NA		10	U	10	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		
M1	MW231	MW231	8/6/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U	U	U	
M1	MW231	MW231	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U	U	U	
M1	MW231	MW231	11/2/1999	1.7	U*	1.7	U*	1.7	U*	0.67	U*	1.3	U*	3.3	U*	3.3	U*	3.3	U*	3.3	U*	3.3	U*	1.7	U*	1.7	U*	1.7	U*	3.3	U*	3.3	U*	

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M1	MW347	MW347	8/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M1	MW347	MW347	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M1	MW351	MW351	8/23/1991	0.449		0.611	U	0.635		0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M1	MW351	MW351	7/15/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M1	SW701	SW701	10/31/2001	0.85	U	0.85	U	0.85	U	0.85	U*	1.7	U*	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	0.85	U	0.85	U	0.85	U	1.7	U		
M1	SW702	SW702	10/31/2001	0.58	U	0.58	U	0.58	U	0.58	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	0.58	U	1.2	U		
M1	SW703	SW703	10/31/2001	0.39	U	0.39	U	0.39	U	0.39	U*	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M1	SW704	SW704	10/31/2001	0.5	U	0.5	U	0.5	U	0.5	U*	1	U*	1	U	1	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	1	U		
M1	SW705	SW705	10/31/2001	0.57	U	0.57	U	0.57	U	0.57	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	0.57	U	1.1	U		
M1	SW706	SW706	10/31/2001	0.7	U	0.7	U	0.7	U	0.7	U*	1.4	U*	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.7	U	0.7	U	1.4	U		
M1	SW707	SW707	10/31/2001	0.73	U	0.73	U	0.73	U	0.73	U*	1.5	U*	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.73	U	0.73	U	0.73	U	1.5	U		
M1	SW708	SW708	10/31/2001	0.52	U	0.52	U	0.52	U	0.52	U*	1	U*	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	0.52	U	1	U		



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Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M5	MW114	MW114	5/22/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		1.8	U		
M5	MW114	MW114	11/11/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M5	MW114	MW114	4/25/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M5	MW114	MW114	7/19/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M5	MW114	MW114	8/27/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M5	MW114	MW114	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M5	MW114	MW114	5/12/2000	0.57	U	0.57	U	0.57	U	0.23	U	0.46	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	0.57	U	1.1	U		
M5	MW114	MW114	4/25/2001	0.21	U	0.21	U	0.21	U	0.21	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	1	U	0.51	U	0.21	U	0.21	U	0.4	U		
M5	MW114R	MW114R	5/3/2002	0.46	U	0.46	U	0.46	U	0.46	U	0.92	U	0.92	U	0.92	U	0.92		0.92	U	0.92	U	0.46	U	0.46	U	0.46	U	0.92	U		
M5	MW114R	MW114R	10/23/2002	0.64	U	0.64	U	0.64	U	0.069	U+	0.34	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.64	U	1.3	U		
M5	MW114R	MW114R	10/21/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39		0.78	U		
M5	MW114R	MW114R	7/20/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M5	MW114R	MW114R	10/13/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M5	MW114R	MW114R	5/1/2006	0.4	U	0.4	U	0.4	U	0.033	U+	0.073	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.08	U+	0.81	U		
M5	MW114R	MW114R	10/12/2006	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.087	U+	0.88	U		
M5	MW114R	MW114R	4/23/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M5	MW114R	MW114R-DUP	4/23/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M5	MW114R	MW114R	10/3/2007	0.047	U+	0.029	U+	0.05	U+	0.081	U+	0.11	U+	0.08	U+	0.14	U+	0.12	U+	0.11	U+	0.11	U+	0.05	U+	0.043	U+	0.071	U+	0.11	U+		
M5	MW114R	MW114R	5/1/2008	0.52	U	0.52	U	0.52	U	0.52	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U		
M5	MW127	MW127	11/11/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M5	MW127	MW127	4/15/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M5	MW127	MW127	7/28/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M5	MW127	MW127	8/28/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M5	MW127	MW127	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M5	MW207	MW207	7/21/1988	1.9		0.26		16.7		3.6	U	5.53		NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	67			
M5	MW207	MW207	8/28/1991	0.449	U	0.611	U	0.635	U	0.136		0.133		NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	4.86			
M5	MW207	MW207	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M5	MW207	MW207	5/12/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U*	0.39	U	0.39	U	0.78	U		
M5	MW207	MW207	10/27/2000	0.71	U	0.71	U	0.71	U	0.28	U	0.57	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.71	U	0.71	U	0.71	U	1.4	U		
M5	MW207	MW207	4/25/2001	0.16	U	0.16	U	0.16	U	0.16	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.78		0.39	U	0.16	U	0.16	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M5	MW207R	MW207R	10/25/2001	0.68	U	0.68	U	0.68	U	0.68	U*	1.8	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.68	U	0.68	U	1.4	U
M5	MW207R	MW207R	5/3/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.8	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M5	MW207R	MW207R	10/25/2002	0.93		0.42		0.39	U	0.78		0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M5	MW207R	MW207R	5/16/2003	0.7	U	0.7	U	0.7	U	0.058	U+	0.37	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.7	U	1.4	U
M5	MW207R	MW207R-DUP	5/16/2003	0.54	U	0.54	U	0.54	U	0.058	U	0.29		1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.54	U	1.1	U
M5	MW207R	MW207R	10/21/2003	0.73		0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	1	U	0.7	U	0.78	U	0.83		0.78	U	0.39	U	4.9		0.78	U
M5	MW207R	MW207R-DUP	10/21/2003	0.51		0.39	U	0.39	U	0.79	J	0.21	U	0.78	U	1.1		0.78	U	0.78	U	0.91		0.78	U	0.39	U	0.39	U	0.78	U
M5	MW207R	MW207R	5/20/2004	0.58	U	0.58	U	0.58	U	0.056	U	0.28	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U
M5	MW207R	MW207R-DUP	5/20/2004	0.52	U	0.52	U	0.52	U	0.056	U	0.28	U	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U
M5	MW207R	MW207R	10/20/2004	0.57	U	0.57	U	0.57	U	0.18	U+	0.25	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	1.1	U
M5	MW207R	MW207R-DUP	10/20/2004	0.69	U	0.69	U	0.69	U	0.22	U	0.25	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.69	U	0.69	U	1.4	U
M5	MW207R	MW207R	7/20/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M5	MW207R	MW207R	10/13/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M5	MW207R	MW207R	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.48		0.077	U+	0.78	U
M5	MW207R	MW207R	10/12/2006	0.54	U	0.54	U	0.54	U	0.044	U+	0.098	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.11	U+	1.1	U
M5	MW207R	MW207R	4/23/2007	0.062	U+	0.053	U+	0.058	U+	0.051	U+	0.11	U+	0.056	U+	0.13	U+	0.22	U+	0.12	U+	0.13	U+	0.2	U+	0.051	U+	0.12	U+	0.1	U+
M5	MW207R	MW207R	10/4/2007	0.035	U+	0.022	U+	0.037	U+	0.06	U+	0.085	U+	0.059	U+	0.11	U+	0.091	U+	0.083	U+	0.083	U+	0.037	U+	0.032	U+	0.053	U+	0.078	U+
M5	MW207R	MW207R-DUP	10/4/2007	0.034	U+	0.022	U+	0.037	U+	0.06	U+	0.084	U+	0.058	U+	0.11	U+	0.09	U+	0.082	U+	0.082	U+	0.037	U+	0.032	U+	0.052	U+	0.077	U+
M5	MW207R	MW207R	5/1/2008	0.39	U	0.039	J	0.39	U	0.12	J	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.12	Jl
M5	MW207R	MW207R-DUP	5/1/2008	0.39	U	0.047	J	0.39	U	0.14	J	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.13	Jl
M5	MW354	MW354	9/12/1991	0.449	U	0.611	U	0.635		0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M5	MW354	MW354	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M5	MW354	MW354	5/12/2000	1.1	U	1.1	U	1.1	U	0.43	U	0.86	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	1.1	U*	1.1	U	1.1	U	2.1	U
M5	MW354	MW354	4/25/2001	0.28	U	0.28	U	0.28	U	0.28	U	0.54	U*	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	1.4	U	0.68	U	0.28	U	0.54	U
M5	MW354R	MW354R	10/25/2001	0.98	U	0.98	U	0.98	U	0.98	U*	2	U*	2	U	2	U	2	U	2	U	2	U	0.98	U	0.98	U	0.98	U	2	U
M5	MW354R	MW354R	5/3/2002	0.73	U	0.73	U	0.73	U	0.73	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.73	U	0.73	U	1.5	U
M5	MW354R	MW354R	10/23/2002	0.47	U	0.47	U	0.47	U	0.03	U+	0.25	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.94	U
M5	MW354R	MW354R	10/21/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M5	MW354R	MW354R	7/20/2005	0.52	U	0.52	U	0.52	U	0.043	U+	0.095	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.1	U+	1	U
M5	MW354R	MW354R	10/13/2005	0.52	U	0.52	U	0.52	U	0.043	U+	0.095	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.1	U+	1	U
M5	MW354R	MW354R	5/1/2006	0.4	U	0.4	U	0.4	U	0.033	U+	0.073	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.08	U+	0.81	U
M5	MW354R	MW354R	10/12/2006	0.58	U	0.58	U	0.58	U	0.047	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.11	U+	1.2	U
M5	MW354R	MW354R	4/23/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M5	MW354R	MW354R	10/4/2007	0.034	U+	0.022	U+	0.037	U+	0.06	U+	0.084	U+	0.058	U+	0.11	U+	0.09	U+	0.082	U+	0.082	U+	0.037	U+	0.032	U+	0.052	U+	0.077	U+
M5	MW354R	MW354R	5/1/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M5	MW355	MW355	10/18/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M5	MW355	MW355	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M5	MW355	MW355	5/12/2000	0.58	U	0.58	U	0.58	U	0.23	U	0.47	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	0.58	U	1.2	U
M5	MW355	MW355	4/25/2001	0.16	U	0.16	U	0.16	U	0.16	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.78	U	0.39	U	0.16	U	0.31	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M5	MW355R	MW355R	10/25/2001	0.6	U	0.6	U	0.6	U	0.6	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	0.6	U	1.2	U
M5	MW355R	MW355R	5/3/2002	0.43	U	0.43	U	0.43	U	0.43	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.43	U	0.43	U	0.86	U
M5	MW355R	MW355R	10/23/2002	0.65	U	0.65	U	0.65	U	0.07	U+	0.35	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	1.3	U
M5	MW355R	MW355R	10/21/2003	0.42	U	0.42	U	0.42	U	0.045	U+	0.22	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.42	U	0.83	U
M5	MW355R	MW355R	7/20/2005	0.47	U	0.47	U	0.47	U	0.038	U+	0.085	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.092	U+	0.94	U
M5	MW355R	MW355R-DUP	7/20/2005	0.7	U	0.7	U	0.7	U	0.058	U+	0.13	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.14	U+	1.4	U
M5	MW355R	MW355R	10/13/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M5	MW355R	MW355R-DUP	10/13/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M5	MW355R	MW355R	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M5	MW355R	MW355R-DUP	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M5	MW355R	MW355R	10/12/2006	0.4	U	0.4	U	0.4	U	0.033	U+	0.072	U+	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.4	U	0.078	U+	0.79	U
M5	MW355R	MW355R-DUP	10/12/2006	0.54	U	0.54	U	0.54	U*	0.044	U+	0.098	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.11	U+	1.1	U
M5	MW355R	MW355R	4/23/2007	0.068	U+	0.057	U+	0.062	U+	0.055	U+	0.12	U+	0.061	U+	0.14	U+	0.24	U+	0.13	U+	0.14	U+	0.21	U+	0.055	U+	0.13	U+	0.11	U+
M5	MW355R	MW355R	10/3/2007	0.034	U+	0.021	U+	0.036	U+	0.059	U+	0.083	U+	0.058	U+	0.1	U+	0.089	U+	0.081	U+	0.081	U+	0.036	U+	0.031	U+	0.051	U+	0.076	U+
M5	MW355R	MW355R	5/1/2008	0.55	U	0.55	U	0.55	U	0.55	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U
M5	MW356	MW356	10/18/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M5	MW356	MW356	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M5	MW403	MW403	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M5	SWSB	SWSB	5/12/2004	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U
M5	SWSB	SWSB	10/13/2004	0.58	U	0.58	U	0.58	U	0.18	U+	0.21	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U
M5	SWSB	SWSB	7/21/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M5	SWSB	SWSB	10/14/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.9		0.78	U	0.78	U	1.4		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M5	SWSB	SWSB	5/10/2006	0.42	U	0.42	U	0.42	U	0.035	U+	0.076	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.083	U+	0.83	U
M5	SWSB	SWSB	10/17/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M5	SWSB	SWSB	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M5	SWSB	SWSB	10/5/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M5	SWSB	SWSB	4/29/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.84		0.78	U	0.78	U	0.86		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M5	SWTET	SWTET	7/16/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M5	SWTET	SWTET	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M5	SWTET	SWTET	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M5	SWTET	SWTET	5/12/2000	0.58	U	0.58	U	0.58	U	0.23	U	0.47	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U*	0.58	U	0.58	U	1.2	U
M5	SWTET	SWTET	10/27/2000	0.41	U	0.41	U	0.41	U	0.16	U	0.33	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.41	U	0.41	U	0.82	
M5	SWTET	SWTET	5/22/2001	0.88	U	0.88	U	0.88	U	0.88	U*	1.8	U*	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	0.88	U	0.88	U	0.88	U	1.8	U
M5	SWTET	SWTET	10/31/2001	0.52	U	0.52	U	0.52	U	0.52	U*	1	U*	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	0.52	U	1	U
M5	SWTET	SWTET	5/3/2002	0.49	U	0.49	U	0.49	U	0.49	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.49	U	0.99	U
M5	SWTET	SWTET	10/17/2002	0.47	U	0.47	U	0.47	U	0.05	U+	0.25	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.94	U
M5	SWTET	SWTET-DUP	10/17/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M5	SWTET	SWTET	10/8/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW116	MW116	5/28/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		1.8	U
M6	MW116	MW116	11/6/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW116	MW116	4/18/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	3.6	U
M6	MW116	MW116	7/22/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M6	MW116	MW116	6/28/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW116	MW116	5/16/2000	0.39	U	0.39	U	0.39	U*	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW116	MW116	10/26/2000	0.6	U	0.6	U	0.6	U	0.24	U	0.48	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	0.6	U	1.2	U
M6	MW116	MW116	5/21/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW116	MW116	10/25/2001	0.49	U	0.49	U	0.49	U	0.49	U*	0.98	U*	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.49	U	0.98	U
M6	MW116	MW116	5/3/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW116	MW116	10/17/2002	0.61	U	0.61	U	0.61	U	0.066	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.61	U	0.61	U	1.2	U
M6	MW116	MW116	5/13/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW116	MW116	10/15/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW116	MW116	5/19/2004	0.49	U	0.49	U	0.49	U	0.053	U+	0.26	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U
M6	MW116	MW116	10/19/2004	0.73	U	0.73	U	0.73	U	0.23	U+	0.27	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.73	U	0.73	U	1.5	U
M6	MW116	MW116	7/14/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW116	MW116	10/20/2005	0.45	U	0.45	U	0.45	U	0.037	U+	0.082	U+	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.089	U+	0.9	U
M6	MW116	MW116	5/3/2006	0.6	U	0.6	U	0.6	U	0.05	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.12	U+	1.2	U
M6	MW116	MW116	10/11/2006	0.9	U	0.9	U	0.9	U	0.074	U+	0.16	U+	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	0.9	U	0.18	U+	1.8	U
M6	MW116	MW116	4/30/2007	0.058	U+	0.049	U+	0.053	U+	0.047	U+	0.11	U+	0.052	U+	0.12	U+	0.2	U+	0.11	U+	0.12	U+	0.18	U+	0.047	U+	0.11	U+	0.096	U+
M6	MW116	MW116	10/11/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M6	MW116	MW116	5/9/2008	0.49	U	0.49	U	0.49	U	0.49	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.98	U

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				Compounds		1,3,5- Trinitrobenzene		1,3- Dinitrobenzene		2,4,6- Trinitrotoluene (TNT)		2,4- Dinitrotoluene		2,6- Dinitrotoluene		2-Amino-4,6- Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6- Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl				
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
				Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																		
				Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																		
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																						
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M6	MW117	MW117	5/28/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		NA		NA				
M6	MW117	MW117	11/6/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U					
M6	MW117	MW117	4/18/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U					
M6	MW117	MW117	7/22/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U					
M6	MW117	MW117	10/16/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17		2.49	U					
M6	MW117	MW117	6/28/1999	0.66	U	0.66	U	0.66	U	0.53	U	0.53	U	1.3	U	1.3	U	NA		NA		NA		0.66	U	0.66	U	0.66	U	1.3	U					
M6	MW117	MW117	5/16/2000	0.44	U	0.44	U	0.44	U	0.17	U	0.35	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.44	U	0.44	U	0.87	U					
M6	MW117	MW117	5/21/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U					
M6	MW117	MW117	10/24/2001	0.4	U	0.4	U	0.4	U	0.4	U	0.51	U*	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.4	U	0.81	U					
M6	MW117	MW117	5/3/2002	0.4	U	0.4	U	0.4	U	0.4	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.4	U	0.81	U					
M6	MW117	MW117	10/17/2002	0.55	U	0.55	U	0.55	U	0.059	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U			
M6	MW117	MW117	5/13/2003	0.65	U	0.65	U	0.65	U	0.07	U+	0.35	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	1.3	U			
M6	MW117	MW117	10/15/2003	0.53	U	0.53	U	0.53	U	0.057	U+	0.28	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U			
M6	MW117	MW117	5/19/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U			
M6	MW117	MW117	10/19/2004	0.64	U	0.64	U	0.64	U	0.2	U+	0.23	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.64	U	1.3	U			
M6	MW117	MW117	7/14/2005	0.44	U	0.44	U	0.44	U	0.036	U+	0.079	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.086	U+	0.87	U			
M6	MW117	MW117	10/20/2005	0.58	U	0.58	U	0.58	U	0.048	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.12	U+	1.2	U			
M6	MW117	MW117	5/3/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U			
M6	MW117	MW117	10/11/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U			
M6	MW117	MW117	4/30/2007	0.043	U+	0.036	U+	0.04	U+	0.035	U+	0.078	U+	0.038	U+	0.09	U+	0.15	U+	0.081	U+	0.09	U+	0.13	U+	0.035	U+	0.085	U+	0.072	U+					
M6	MW117	MW117	10/11/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+					
M6	MW117	MW117	5/9/2008	0.44	U	0.44	U	0.44	U	0.44	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.44	U	0.87	U			



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Compounds				1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
Surface Water RG				15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW118	MW118	7/10/1981	2.2	U	NA		0.9		0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		NA			
M6	MW118	MW118	11/14/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M6	MW118	MW118	4/22/1986	9.54		2.3	U	9.74		0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M6	MW118	MW118	7/22/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03			
M6	MW118	MW118	7/16/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M6	MW118	MW118	6/28/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW118	MW118	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW118	MW118	5/12/2000	0.58	U	0.58	U	0.58	U	0.23	U	0.47	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	0.58	U	1.2	U		
M6	MW118	MW118	5/21/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW118	MW118	10/24/2001	0.52	U	0.52	U	0.52	U	0.52	U*	1	U*	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	0.52	U	1	U		
M6	MW118	MW118	5/3/2002	0.45	U	0.45	U	0.45	U	0.45	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.45	U	0.45	U	0.9	U		
M6	MW118	MW118	10/17/2002	0.63	U	0.63	U	0.63	U	0.068	U+	0.33	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.63	U	0.63	U	13	U		
M6	MW118	MW118	5/13/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW118	MW118	10/16/2003	0.51	U	0.51	U	0.51	U	0.055	U+	0.27	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.51	U	1	U		
M6	MW118	MW118	5/19/2004	0.55	U	0.55	U	0.55	U	0.059	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U		
M6	MW118	MW118	10/22/2004	0.48	U	0.48	U	0.48	U	0.15	U+	0.18	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.48	U	0.96	U		
M6	MW118	MW118	7/13/2005	0.39	U	0.39	U	0.77		0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW118	MW118	10/19/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW118	MW118	5/3/2006	0.52	U	0.52	U	0.52	U	0.043	U+	0.095	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.1	U+	1	U		
M6	MW118	MW118	10/11/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW118	MW118	4/30/2007	0.04	U+	0.034	U+	0.037	U+	0.033	U+	0.073	U+	0.036	U+	0.085	U+	0.14	U+	0.076	U+	0.085	U+	0.13	U+	0.033	U+	0.08	U+	0.067	U+		
M6	MW118	MW118	10/12/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+		
M6	MW118	MW118	5/6/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW119	MW119	6/2/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		NA	
M6	MW119	MW119	11/1/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW119	MW119	4/16/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW119	MW119	7/22/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M6	MW119	MW119	6/28/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW119	MW119	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW119	MW119	5/21/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW119	MW119	10/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW119	MW119	5/3/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW119	MW119	10/17/2002	0.59	U	0.59	U	0.59	U	0.064	U+	0.31	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	1.2	U
M6	MW119	MW119-DUP	10/17/2002	0.47	U	0.47	U	0.47	U	0.05	U	0.25	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.94	U
M6	MW119	MW119	5/13/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW119	MW119	10/16/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW119	MW119	5/19/2004	0.68	U	0.68	U	0.68	U	0.073	U+	0.36	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.68	U	1.4	U
M6	MW119	MW119	10/22/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW119	MW119	7/18/2005	0.57	U	0.57	U	0.57	U	0.047	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.11	U+	1.1	U
M6	MW119	MW119	10/21/2005	0.52	U	0.52	U	0.52	U	0.52	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U
M6	MW119	MW119	5/3/2006	0.44	U	0.44	U	0.44	U	0.036	U+	0.079	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.87	U+	0.87	U
M6	MW119	MW119	10/9/2006	0.49	U	0.49	U	0.49	U	0.041	U+	0.09	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.098	U+	0.99	U
M6	MW119	MW119	4/30/2007	0.06	U+	0.051	U+	0.056	U+	0.05	U+	0.11	U+	0.054	U+	0.13	U+	0.21	U+	0.11	U+	0.13	U+	0.19	U+	0.05	U+	0.12	U+	0.1	U+
M6	MW119	MW119	10/10/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M6	MW119	MW119-DUP	10/10/2007	0.028	U+	0.018	U+	0.03	U+	0.049	U+	0.068	U+	0.048	U+	0.086	U+	0.073	U+	0.067	U+	0.067	U+	0.03	U+	0.026	U+	0.042	U+	0.063	U+
M6	MW119	MW119	5/6/2008	0.72	U	0.72	U	0.72	U	0.72	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.72	U	0.72	U	1.4	U
M6	MW123	MW123	6/3/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		NA	
M6	MW123	MW123	11/4/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		13.5		5.6	U
M6	MW123	MW123	4/18/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW123	MW123	7/22/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M6	MW123	MW123	10/14/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M6	MW123	MW123	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW123	MW123-DUP	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW123	MW123	6/30/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW123	MW123	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW123	MW123	5/15/2000	0.47	U	0.47	U	0.47	U	0.19	U	0.37	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U*	0.47	U	0.47	U	0.94	U
M6	MW123	MW123	10/20/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW123	MW123	4/26/2001	0.16	U	0.16	U	0.16	U	0.16	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.78	U	0.39	U	0.16	U	0.16	U	0.31	U

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		NC		5100		NC		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW123R	MW123R	10/23/2001	0.44	U	0.44	U	0.44	U	0.44	U*	0.88	U*	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.44	U	0.44	U	0.88	U
M6	MW123R	MW123R	5/8/2002	0.46	U	0.46	U	0.46	U	0.46	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.46	U	0.91	U
M6	MW123R	MW123R	10/22/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW123R	MW123R	5/13/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW123R	MW123R	10/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW123R	MW123R	5/19/2004	0.57	U	0.57	U	0.57	U	0.061	U+	0.3	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	1.1	U
M6	MW123R	MW123R	10/20/2004	0.65	U	0.65	U	0.65	U	0.2	U+	0.24	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	1.3	U
M6	MW123R	MW123R	7/18/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW123R	MW123R	10/17/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW123R	MW123R	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW123R	MW123R	10/10/2006	0.57	U	0.57	U	0.57	U	0.047	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.11	U+	1.1	U
M6	MW123R	MW123R	4/25/2007	0.054	U+	0.046	U+	0.05	U+	0.044	U+	0.098	U+	0.048	U+	0.11	U+	0.19	U+	0.1	U+	0.11	U+	0.17	U+	0.044	U+	0.11	U+	0.09	U+
M6	MW123R	MW123R	10/11/2007	0.032	U+	0.02	U+	0.034	U+	0.055	U+	0.077	U+	0.054	U+	0.097	U+	0.083	U+	0.076	U+	0.076	U+	0.034	U+	0.029	U+	0.048	U+	0.071	U+
M6	MW123R	MW123R	5/8/2008	0.53	U	0.53	U	0.53	U	0.53	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U
M6	MW125	MW125	6/4/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		NA	
M6	MW125	MW125	11/7/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW125	MW125	4/17/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW125	MW125	7/25/1988	14.8		1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M6	MW125	MW125	10/15/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M6	MW125	MW125	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW160	MW160	12/3/1982	2.8	U	NA		1.2		0.66		3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA	
M6	MW160	MW160	11/13/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW160	MW160	4/17/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW160	MW160	10/14/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M6	MW160	MW160	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW160	MW160	6/28/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW160	MW160	10/29/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U*
M6	MW160	MW160	5/16/2000	0.39	U	0.39	U	0.39	U*	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW160	MW160	10/23/2000	0.39	U	0.39	U	0.57	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW160	MW160	5/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW160	MW160	11/1/2001	0.46	U	0.46	U	0.46	U	0.46	U*	0.91	U*	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.46	U	0.91	U
M6	MW160	MW160	5/9/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW160	MW160	5/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW160	MW160	10/16/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW160	MW160	5/20/2004	0.76	U	0.76	U	0.76	U	0.082	U+	0.4	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.76	U	0.76	U	1.5	U
M6	MW160	MW160	10/22/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW160	MW160	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW160	MW160	10/9/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW160	MW160	4/25/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+

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Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW161	MW161	12/1/1982	4.1		NA		0.52		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA	
M6	MW161	MW161	11/20/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW161	MW161	4/17/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW161	MW161	7/15/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M6	MW161	MW161	10/14/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M6	MW161	MW161	7/10/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW162	MW162	12/1/1982	2.8	U	NA		0.73		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA	
M6	MW162	MW162	11/4/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW162	MW162	4/17/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW162	MW162	10/14/1991	0.449	U	0.611	U	0.645	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M6	MW162	MW162	7/10/1998	0.19		0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW162	MW162-DUP	7/10/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW162	MW162	6/28/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW162	MW162	5/15/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U*	0.39	U	0.39	U	0.78	U
M6	MW162	MW162	10/20/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW162	MW162	4/26/2001	0.16	U	0.16	U	0.16	U	0.16	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.78	U	0.39	U	0.16	U	0.16	U	0.31	U
M6	MW162R	MW162R	10/23/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW162R	MW162R	5/8/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW162R	MW162R	10/22/2002	0.42	U	0.42	U	0.42	U	0.046	U+	0.22	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U
M6	MW162R	MW162R	5/13/2003	0.58	U	0.58	U	0.58	U	0.062	U+	0.31	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U
M6	MW162R	MW162R	10/15/2003	0.54	U	0.54	U	0.54	U	0.058	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.54	U	1.1	U
M6	MW162R	MW162R	5/19/2004	0.54	U	0.54	U	0.54	U	0.058	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.54	U	1.1	U
M6	MW162R	MW162R	10/20/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW162R	MW162R	7/13/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW162R	MW162R	10/20/2005	0.63	U	0.63	U	0.63	U	0.052	U+	0.11	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.63	U	0.12	U+	1.3	U
M6	MW162R	MW162R	5/3/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW162R	MW162R	10/11/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW162R	MW162R	4/25/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M6	MW162R	MW162R	10/9/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M6	MW162R	MW162R	5/1/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW164	MW164	3/9/1983	2.8	U	NA		17.5		18.3		4.12		NA		9.78		NA		NA		NA		NA		NA		NA		NA	
M6	MW164	MW164	11/20/1985	5.6	U	2.3	U	2090		10.9		9.34		NA		NA		NA		NA		NA		NA		NA		7	U	34.5	
M6	MW164	MW164	4/23/1986	1.4	U	7.34		3.8	U	7.19		3.97		NA		NA		NA		NA		NA		NA		NA		7	U	28.2	
M6	MW164	MW164	10/17/1991	240		2.32		2000		20		0.074	U	NA		9.65		NA		NA		NA		12	U	81.8		52.7		2.49	U
M6	MW165	MW165	12/3/1982	2.8	U	NA		0.64		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA	
M6	MW165	MW165	11/19/1985	7	U	11.5	U	9.5	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		3.5	U	28	U
M6	MW165	MW165	4/17/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M6	MW165	MW165	11/20/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

Compounds		Unit		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW166	MW166	3/19/1983	2.8	U	NA		1.35		0.36		3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA			
M6	MW166	MW166	11/5/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M6	MW166	MW166	4/16/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M6	MW166	MW166	7/19/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M6	MW166	MW166	10/16/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M6	MW166	MW166	7/10/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M6	MW166	MW166	6/29/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW166	MW166	10/27/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U*		
M6	MW166	MW166	5/18/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW166	MW166	10/23/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW166	MW166	4/26/2001	0.27	U	0.27	U	0.27	U	0.27	U	0.52	U*	0.52	U	0.52	U	0.52	U	0.52	U	1.3	U	0.65	U	0.27	U	0.27	U	0.52	U		
M6	MW166	MW166-DUP	4/26/2001	0.27	U	0.27	U	0.27	U	0.27	U	0.53	U	0.53	U	0.53	U	0.53	U	0.53	U	1.3	U	0.67	U	0.27	U	0.27	U	0.53	U		
M6	MW166R	MW166R	10/22/2001	0.58	U	0.58	U	0.58	U	0.58	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	0.58	U	1.2	U		
M6	MW166R	MW166R	5/1/2002	0.55	U	0.55	U	0.55	U	0.55	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U		
M6	MW166R	MW166R	10/16/2002	0.44	U	0.44	U	0.44	U	0.047	U+	0.37	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.44	U	0.87	U		
M6	MW166R	MW166R-DUF	10/16/2002	0.7	U	0.7	U	0.7	U	0.076	U	0.37	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.7	U	1.4	U		
M6	MW166R	MW166R	5/13/2003	0.52	U	0.52	U	0.52	U	0.056	U+	0.28	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U		
M6	MW166R	MW166R	10/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW166R	MW166R	5/19/2004	0.68	U	0.68	U	0.68	U	0.074	U+	0.36	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.68	U	1.4	U		
M6	MW166R	MW166R	10/25/2004	0.55	U	0.55	U	0.55	U	0.17	U+	0.2	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U		
M6	MW166R	MW166R	7/19/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW166R	MW166R	10/17/2005	0.51	U	0.51	U	0.51	U	0.042	U+	0.092	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.1	U+	1	U		
M6	MW166R	MW166R	5/2/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW166R	MW166R	10/10/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW166R	MW166R	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M6	MW166R	MW166R	10/8/2007	0.059	U+	0.037	U+	0.063	U+	0.1	U+	0.14	U+	0.1	U+	0.18	U+	0.15	U+	0.14	U+	0.14	U+	0.063	U+	0.054	U+	0.089	U+	0.13	U+		
M6	MW166R	MW166R	5/5/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW166R-PER	MW166R-PER	7/21/2005	0.53	U	0.53	U	0.53	U	0.043	U+	0.096	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.1	U+	1.1	U		
M6	MW208	MW208	7/26/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M6	MW208	MW208	10/14/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M6	MW208	MW208	7/10/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M6	MW210	MW210	7/15/1988	1.51	U	1.26	U	820		3200		1400		NA		4800		NA		NA		NA		NA		NA		3.76	U	3.03	U		
M6	MW210	MW210	9/10/1991	0.449	U	0.611	U	430		1700		590		NA		3500		NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		



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				Compounds		1,3,5- Trinitrobenzene	1,3- Dinitrobenzene	2,4,6- Trinitrotoluene (TNT)	2,4- Dinitrotoluene	2,6- Dinitrotoluene	2-Amino-4,6- Dinitrotoluene	2-Nitrotoluene	3-Nitrotoluene	4-Amino-2,6- Dinitrotoluene	4-Nitrotoluene	HMX	Nitrobenzene	RDX	Tetryl						
				Unit		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l						
				Minimum RG		5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200						
				Risk Based RG		5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200						
				Surface Water RG		15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS						
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW210R	MW210R	12/8/1998	1.2	U	1.2	U	18.7		27.2		1.2	U	13.8		63.4		NA		NA		NA		2.6	U
M6	MW210R	MW210R	6/25/1999	0.39	U	0.39	U	11		13	Q	13	Q	12		23		NA		NA		NA		0.39	U
M6	MW210R	MW210R-DUP	6/25/1999	0.66	U	0.66	U	9.8		11.5	Q	11.5	Q	9.8		24		NA		NA		NA		0.66	U
M6	MW210R	MW210R	10/29/1999	2.7	U	2.7	U	26		7.9	J	10		18	J	11		NA		NA		NA		2.7	U
M6	MW210R	MW210R-DUP	10/29/1999	1.9	U	1.9	U	18		7.9	J	9.9		13	J	12		NA		NA		NA		1.9	U
M6	MW210R	MW210R	5/15/2000	0.49	U	0.49	U	15	D	0.19	U	0.86		4.2		0.97	U	0.97	U	6.7		0.97	U	0.49	U
M6	MW210R	MW210R	10/24/2000	0.39	U	0.39	U	9.6	D	0.16	U	0.31	U	7.7		0.78	U	0.78	U	10		0.78	U	0.39	U
M6	MW210R	MW210R	5/21/2001	0.78	U	0.78	U	22		26		20		21		53		4.8		38		19		0.78	U
M6	MW210R	MW210R	10/19/2001	2.7	U	2.7	U	97		300		150		61		140		37		91		67		2.7	U
M6	MW210R	MW210R	5/3/2002	0.49	U	0.49	U	7.9		1.4		2.9		8.2		2.2		0.98	U	14		0.98	U	0.49	U
M6	MW210R	MW210R-DUP	5/3/2002	0.44	U	0.44	U	7.8		2.1		3.4		8.3		4		0.88	U	14		1.4		0.44	U
M6	MW210R	MW210R	10/24/2002	0.42	U	0.42	U	1.9		0.8		1.8		3.7		0.85	U	0.85	U	6.1		0.85	U	0.42	U
M6	MW210R	MW210R	5/15/2003	0.49	U	0.49	U	1.4		0.052	U+	0.98		2.1		0.98	U	0.98	U	3.4		0.98	U	0.98	U
M6	MW210R	MW210R	10/16/2003	0.42	U	0.42	U	6		1.8		6.3		12		0.83	U	0.83	U	21		0.83	U	0.42	U
M6	MW210R	MW210R	5/21/2004	0.39	U	0.39	U	3		0.92		1.5		4.1		0.95		0.78	U	9.1		1.6		0.78	U
M6	MW210R	MW210R	10/22/2004	0.39	U	0.39	U	0.39	U	0.52		0.14	U+	0.97		0.78	U	0.78	U	2.1		0.78	U	0.39	U
M6	MW210R	MW210R	7/14/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	1.2		0.78	U	0.78	U	3.1		0.78	U	0.39	U
M6	MW210R	MW210R	10/18/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	1.6		0.78	U	0.39	U
M6	MW210R	MW210R	5/1/2006	0.39	U	0.39	U	2.6		0.032	U+	1.1		3.5		0.78	U	0.78	U	18		0.78	U	0.39	U
M6	MW210R	MW210R	10/6/2006	0.39	U	0.39	U	2.9		0.49		2.4		6.7		0.78	U	0.78	U	35		0.78	U	0.39	U
M6	MW210R	MW210R	4/24/2007	0.039	U+	0.033	U+	1.8		0.032	U+	1.2		3.3		0.082	U+	0.14	U+	16		0.082	U+	0.12	U+
M6	MW210R	MW210R	10/10/2007	0.027	U+	0.017	U+	0.029	U+	0.44		0.91		1.8		1.3		0.071	U+	4.8		0.065	U+	0.029	U+
M6	MW210R	MW210R	5/12/2008	0.4	U	0.4	U	1		0.4	U	0.81	U	2.3		0.81	U	0.81	U	12		0.81	U	0.81	U
M6	MW211	MW211	7/15/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		89		NA		NA		NA		3.76	U
M6	MW211	MW211	9/10/1991	2.71		0.611	U	67.5		0.601		5.7		NA		4.02		NA		NA		NA		1.21	U
M6	MW212	MW212	7/25/1988	210		1.26	U	2600		3100		2700		NA		21000		NA		NA		NA		3.76	U
M6	MW212	MW212	9/10/1991	50		5.38		780		1300		580		NA		8300		NA		NA		NA		24.5	U

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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
				Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
				Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW212R	MW212R	12/8/1998	600	U	600	U	470		4600		600	U	600	U	22000		NA		NA		NA		1300	U	600	U	1300	U	1300	U	1300	U		
M6	MW212R	MW212R-DUF	12/8/1998	600	U	600	U	566		5970		600	U	600	U	29000		NA		NA		NA		1300	U	600	U	1300	U	1300	U	1300	U		
M6	MW212R	MW212R	6/25/1999	20	U	20	U	44		500	Q	500	Q	40	U	1100		NA		NA		NA		20	U	20	U	20	U	40	U	40	U		
M6	MW212R	MW212R	10/29/1999	3.9	U	3.9	U	48		930	J	280		35	J	7300		NA		NA		NA		3.9	U	3.9	U	3.9	U	7.8	U	7.8	U*		
M6	MW212R	MW212R	5/16/2000	42	U	42	U	700	J	6800	D	33	U	120		13000	D	1600		83	U	13000	D	42	U	42	U	42	U	83	U	83	U		
M6	MW212R	MW212R-DUF	5/16/2000	39	U	39	U	670		6400	D	31	U	110		15000	D	1700	D	78	U	13000	D	39	U	39	U	39	U	78	U	78	U		
M6	MW212R	MW212R	10/24/2000	39	U	39	U	67	D	2500	D	2800	D	110	D	13000	D	900	D	92	D	6900	D	39	U	39	U	39	U	39	U	78	U		
M6	MW212R	MW212R-DUF	10/24/2000	39	U	39	U	120	D	2600	D	2200	D	78	U	13000	D	960	D	78	U	6800	D	39	U	39	U	39	U	78	U	78	U		
M6	MW212R	MW212R	5/21/2001	20		3.9	U	26		390		340		18		1100		300		20		260		3.9	U	3.9	U	3.9	U	7.8	U	7.8	U		
M6	MW212R	MW212R-DUF	5/21/2001	9.9		3.9	U	23		340		250		16		1300		220		11		440		3.9	U	3.9	U	3.9	U	7.8	U	7.8	U		
M6	MW212R	MW212R	10/24/2001	39	U	39	U	330		2600		970		78	U	11000		860		78	U	6500		39	U	39	U	39	U	78	U	78	U		
M6	MW212R	MW212R-DUF	10/24/2001	39	U	39	U	370		3000		1100		78	U	14000		1100		78	U	8200		39	U	39	U	39	U	78	U	78	U		
M6	MW212R	MW212R	5/3/2002	2.2		0.62		76		480		230		15		1600		180		16		1000		0.39	U	0.39	U	0.39	U	0.78	U	0.78	U		
M6	MW212R	MW212R	10/25/2002	82		6.6	U	84		1500		570		45		6800		610		64		4000		13	U	6.6	U	6.6	U	13	U	13	U		
M6	MW212R	MW212R	5/15/2003	58	U	58	U	710		6400		2200		130		18000		1600		160		10000		120	U	58	U	58	U	58	U	120	U		
M6	MW212R	MW212R	10/17/2003	3.9	U	3.9	U	400		4400		1500		100		14000		1200		98		8400		7.8	U	12		3.9	U	7.8	U	7.8	U		
M6	MW212R	MW212R	5/24/2004	5.5	U	5.5	U	9.6		64		95		14		11	U	11	U	11		11	U	11	U	5.5	U	5.5	U	11	U	11	U		
M6	MW212R	MW212R	5/25/2004	69		10		2500		11000		3300		140		52000		4300		60		33000		11	U	28		4.4	U	8.8	U	8.8	U		
M6	MW212R	MW212R	10/21/2004	3.9	U	3.9		210		2800		860		66	J	12000		970		67		6500		7.8	U	14		3.9	U	7.8	U	7.8	U		
M6	MW212R	MW212R	10/25/2004	4.3	U	14		3200		17000		5100		96	J	78000		6000		120		46000		8.6	U	42		4.3	U	8.6	U	8.6	U		
M6	MW212R	MW212R	7/13/2005	3.9	U	3.9	U	26		490		200		32		3500		290		23		1900		7.8	U	3.9	U	3.9	U	7.8	U	7.8	U		
M6	MW212R	MW212R	10/18/2005	39	U	39	U	1000		17000		3500		340		81000		4000		320		47000		78	U	39	U	7.7	U+	7.8	U	7.8	U		
M6	MW212R	MW212R	5/1/2006	4.1	U	4.1	U	260		2800		630	M	34		7500		590		28		5800		8.2	U	4.1	U	0.81	U+	8.2	U	8.2	U		
M6	MW212R	MW212R	10/6/2006	40	U	40	U	880		6300		1800	/JI	190	/JI	31000		2600		140		19000		81	U	40	U	8	U+	81	U	81	U		
M6	MW212R	MW212R	4/24/2007	0.39	U+	0.33	U+	25		650		250	/JI	45		3300		370		37		2300		1.2	U+	0.32	U+	0.77	U+	0.65	U+	0.65	U+		
M6	MW212R	MW212R	10/10/2007	2.7	U+	1.7	U+	440		3800		1300		190		19000		1700		200		12000		2.9	U+	2.5	U+	4.1	U+	6.1	U+	6.1	U+		
M6	MW212R	MW212R	5/9/2008	4.8	U	4.8	U	460		5700		1000	NJI	70		21000		1300		72		15000		9.6	U	4.8	U	4.8	U	9.6	U	9.6	U		
M6	MW212R	MW212R-DUF	5/9/2008	3.9	U	3.9	U	450		4400		970	NJI	68		17000		1200		70		12000		7.8	U	4.3	Jl	3.9	U	7.8	U	7.8	U		
M6	MW213	MW213	7/25/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U	3.03	U		
M6	MW213	MW213	9/10/1991	0.449	U	0.611	U	0.635	U	10.9		3.04		NA		53.8		NA		NA		NA		1.21	U	1.97		1.17	U	2.49	U	2.49	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW213R	MW213R	12/8/1998	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	2.6	U	NA		NA		NA		2.6	U	1.2	U	2.6	U	2.6	U
M6	MW213R	MW213R	6/25/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW213R	MW213R	10/29/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW213R	MW213R	5/15/2000	0.47	U	0.47	U	0.47	U	0.19	U	0.38	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.47	U	0.47	U	0.47	U*	0.95	U
M6	MW213R	MW213R	10/24/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW213R	MW213R	5/21/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW213R	MW213R	10/19/2001	0.52	U	0.52	U	0.52	U	0.52	U*	1	U*	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	0.52	U	1	U
M6	MW213R	MW213R	5/3/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW213R	MW213R	10/24/2002	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U
M6	MW213R	MW213R	5/15/2003	0.4	U	0.4	U	0.4	U	0.043	U+	0.21	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.81	U
M6	MW213R	MW213R	10/17/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW213R	MW213R	5/21/2004	0.39	U	0.39	U	0.39	U	0.7		0.21	U+	0.78	U	0.93		0.78	U	0.78	U	0.97		0.78	U	0.39	U	0.39	U	0.78	U
M6	MW213R	MW213R	10/22/2004	0.52	U	0.52	U	0.52	U	0.16	U+	0.19	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U
M6	MW213R	MW213R	7/14/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW213R	MW213R-DUP	7/14/2005	0.44	U	0.44	U	0.44	U	0.44	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.44	U	0.87	U
M6	MW213R	MW213R	10/18/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW213R	MW213R-DUP	10/18/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW213R	MW213R	5/1/2006	0.42	U	0.42	U	0.42	U	0.035	U+	0.077	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.083	U+	0.85	U
M6	MW213R	MW213R-DUP	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW213R	MW213R	10/6/2006	0.55	U	0.55	U	0.55	U	0.55	U+	1.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U+	1.1	U
M6	MW213R	MW213R-DUP	10/6/2006	0.6	U	0.6	U	0.6	U	0.6	U+	1.2	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U+	1.2	U
M6	MW213R	MW213R	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M6	MW213R	MW213R	10/10/2007	0.03	U+	0.019	U+	0.032	U+	0.052	U+	0.074	U+	0.051	U+	0.093	U+	0.079	U+	0.073	U+	0.073	U+	0.032	U+	0.028	U+	0.046	U+	0.068	U+
M6	MW213R	MW213R	5/12/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW214	MW214	7/15/1988	1.51	U	1.26	U	2.46		3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M6	MW214	MW214	9/10/1991	0.449	U	0.611	U	0.635	U	0.148		0.376		NA		0.817		NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M6	MW215	MW215	7/15/1988	6.76		1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M6	MW215	MW215	9/11/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF				
M6	MW215R	MW215R	12/8/1998	1.2	U	1.2	U	1.2	U	1.7		1.2	U	1.2	U	6.8		NA		NA		NA		2.6	U	1.2	U	26	U	2.6	U		
M6	MW215R	MW215R	6/25/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW215R	MW215R	10/28/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW215R	MW215R	5/16/2000	0.39	U	0.39	U	0.39	U*	0.16	U	0.31	U	0.78	U	1.9		0.78	U	0.78	U	1		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW215R	MW215R	10/24/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW215R	MW215R	5/21/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	1.3		0.78	U	0.78	U	1		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW215R	MW215R	10/23/2001	0.55	U	0.55	U	0.55	U	0.55	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U		
M6	MW215R	MW215R	5/3/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	1.1		0.78	U	0.78	U	0.84		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW215R	MW215R	10/25/2002	0.66	U	0.66	U	0.66	U	0.071	U+	0.35	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.66	U	0.66	U	1.3	U		
M6	MW215R	MW215R	5/15/2003	0.58	U	0.58	U	0.58	U	0.062	U+	0.31	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U		
M6	MW215R	MW215R	10/16/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW215R	MW215R	5/24/2004	0.63	U	0.63	U	0.63	U	0.068	U+	0.33	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.63	U	0.63	U	1.3	U		
M6	MW215R	MW215R	10/22/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW215R	MW215R	7/18/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW215R	MW215R	10/18/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW215R	MW215R	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW215R	MW215R	10/6/2006	0.42	U	0.42	U	0.42	U	0.42	U+	0.83	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.42	U+	0.83	U		
M6	MW215R	MW215R	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M6	MW215R	MW215R	10/10/2007	0.038	U+	0.024	U+	0.041	U+	0.066	U+	0.092	U+	0.064	U+	0.12	U+	0.099	U+	0.091	U+	0.091	U+	0.041	U+	0.035	U+	0.057	U+	0.085	U+		
M6	MW215R	MW215R	5/9/2008	0.55	U	0.55	U	0.55	U	0.55	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U		

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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
				Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
				Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG				15	4	75	330	150	NS	62	NS	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF				
M6	MW307	MW307	10/23/1991	0.449	U	0.611	U	21.6		0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U				
M6	MW307	MW307	7/10/1998	0.19	U	0.16	U	8.5		0.12	U	0.22	U	21		0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U				
M6	MW307	MW307	6/25/1999	2.2	U	2.2	U	3.9		1.8	U	1.8	U	12		4.5	U	NA		NA		NA		2.2	U	2.2	U	2.2	U	34.5	U				
M6	MW307	MW307	11/2/1999	0.39	U*	0.39	U*	9	J	0.16	U*	0.98	J	6.2	J	0.78	U*	0.78	U*	21	J	0.78	U*	0.39	U*	0.39	U*	0.39	U*	0.78	U*				
M6	MW307	MW307	5/15/2000	0.39	U	0.39	U	9.8	D	0.46		0.31	U	5.3		0.78	U	0.78	U	23	D	0.78	U	0.39	U	0.39	U	0.39	U*	0.78	U				
M6	MW307	MW307	10/26/2000	0.67	U	0.67	U	10		0.27	U	1.4		6.1		1.3	U	1.3	U	15	D	1.3	U	0.67	U	0.67	U	0.67	U	1.3	U				
M6	MW307	MW307	5/21/2001	0.39	U	0.39	U	7.6		0.39	U	0.99		3.8		0.78	U	0.78	U	18		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U				
M6	MW307	MW307	10/24/2001	0.65	U	0.65	U	11		0.65	U	1.3	U*	5.2		1.3	U	1.3	U	27		1.3	U	0.65	U	0.65	U	0.65	U	1.3	U				
M6	MW307	MW307	5/9/2002	0.72	U	0.72	U	10		0.72	U	1.4	U	4.7		1.4	U	1.4	U	27		1.4	U	0.72	U	0.72	U	0.72	U	1.4	U				
M6	MW307	MW307-DUP	5/9/2002	0.55	U	0.55	U	10		0.55	U	1.1	U	4.7		1.1	U	1.1	U	25		1.1	U	0.55	U	0.55	U	0.55	U	1.1	U				
M6	MW307	MW307	10/23/2002	0.51	U	0.51	U	8.5		0.055	U+	1.1		4.7		1	U	1	U	26		1	U	1	U	0.51	U	0.51	U	1	U				
M6	MW307	MW307-DUP	10/23/2002	0.6	U	0.6	U	9		0.064	U	0.32	U	4.9		1.2	U	1.2	U	27		1.2	U	1.2	U	0.6	U	0.6	U	1.2	U				
M6	MW307	MW307	5/15/2003	0.39	U	0.39	U	8.1		0.042	U+	0.79		4.5		0.78	U	0.78	U	23		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M6	MW307	MW307	10/16/2003	0.52	U	0.52	U	10		0.056	U+	1.2		5.7		1	U	1	U	33		1	U	1	U	0.52	U	0.52	U	1	U				
M6	MW307	MW307	5/20/2004	0.64	U	0.64	U	7.6		0.069	U+	0.34	U+	4		1.3	U	1.3	U	20		1.3	U	1.3	U	0.64	U	0.64	U	1.3	U				
M6	MW307	MW307	10/20/2004	0.65	U	0.65	U	8.5		0.2	U+	0.24	U+	5.4		1.3	U	1.3	U	26		1.3	U	1.3	U	0.65	U	0.65	U	1.3	U				
M6	MW307	MW307	7/15/2005	0.39	U	0.39	U	6.8		0.032	U+	0.071	U+	4		0.78	U	0.78	U	21		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U				
M6	MW307	MW307	10/20/2005	0.46	U	0.46	U	6.9		0.037	U+	0.083	U+	5.2		0.91	U	0.91	U	23		0.91	U	0.91	U	0.46	U	0.09	U+	0.91	U				
M6	MW307	MW307	5/2/2006	0.39	U	0.39	U	5.1		0.032	U+	0.071	U+	3.6		0.78	U	0.78	U	26		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U				
M6	MW307	MW307	10/10/2006	0.7	U	0.7	U	6.6		0.057	U+	0.13	U+	4.6		1.4	U	1.4	U	26		1.4	U	1.4	U	0.7	U	0.14	U+	1.4	U				
M6	MW307	MW307	4/26/2007	0.039	U+	0.033	U+	5.2		0.032	U+	0.071	U+	2.7		0.082	U+	0.14	U+	16		0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+				
M6	MW307	MW307	10/10/2007	0.027	U+	0.017	U+	13		0.047	U+	1.1		4.4		0.083	U+	0.071	U+	31		0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+				
M6	MW307	MW307-DUP	10/10/2007	0.041	U+	0.026	U+	14		0.072	U+	0.1	U+	4.6		0.13	U+	0.11	U+	33		0.1	U+	0.044	U+	0.038	U+	0.063	U+	0.094	U+				
M6	MW307	MW307	5/8/2008	0.74	U	0.74	U	8.1		0.74	U	1.5	U	2.9		1.5	U	1.5	U	22		1.5	U	0.74	U	0.74	U	0.74	U	1.5	U				



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				Compounds		1,3,5- Trinitrobenzene		1,3- Dinitrobenzene		2,4,6- Trinitrotoluene (TNT)		2,4- Dinitrotoluene		2,6- Dinitrotoluene		2-Amino-4,6- Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6- Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
						Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
						Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
						Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
						Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW308	MW308	10/6/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U				
M6	MW308	MW308	7/10/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U				
M6	MW308	MW308	6/25/1999	0.55	U	0.55	U	0.55	U	0.44	U	0.44	U	1.1	U	1.1	U	NA		NA		NA		0.55	U	0.55	U	0.55	U	1.1	U				
M6	MW308	MW308	5/15/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U*	0.78	U				
M6	MW308	MW308	10/26/2000	0.49	U	0.49	U	0.49	U	0.2	U	0.39	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.49	U	0.99	U				
M6	MW308	MW308	5/21/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U				
M6	MW308	MW308	10/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U				
M6	MW308	MW308	5/9/2002	0.64	U	0.64	U	0.64	U	0.64	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.64	U	0.64	U	1.3	U				
M6	MW308	MW308	10/24/2002	0.44	U	0.44	U	0.44	U	0.048	U+	0.23	U+	0.88	U	0.88	U	0.88	U	0.9		0.88	U	0.88	U	0.44	U	0.44	U	0.88	U				
M6	MW308	MW308	5/15/2003	0.39	U	0.39	U	20		0.042	U+	0.21	U+	2.3		0.78	U	0.78	U	14		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M6	MW308	MW308	10/20/2003	0.39	U	0.39	U	3.4		0.042	U+	0.21	U+	3.1		0.78	U	0.78	U	9.6		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M6	MW308	MW308	5/20/2004	0.6	U	0.6	U	4.7		0.064	U+	0.32	U+	2.1		1.2	U	1.2	U	8.7		1.2	U	1.2	U	0.6	U	0.6	U	1.2	U				
M6	MW308	MW308	10/20/2004	0.5	U	0.5	U	3.5		0.16	U+	0.18	U+	2		1	U	1	U	8.5		1	U	1	U	0.5	U	0.5	U	1	U				
M6	MW308	MW308	7/15/2005	0.42	U	0.42	U	1.4		0.035	U+	0.077	U+	1.6		0.85	U	0.85	U	5.9		0.85	U	0.85	U	0.42	U	0.083	U+	0.85	U				
M6	MW308	MW308	10/17/2005	0.5	U	0.5	U	2.7		0.041	U+	0.091	U+	2.1		1	U	1	U	8.5		1	U	1	U	0.5	U	0.099	U+	1	U				
M6	MW308	MW308	5/1/2006	0.48	U	0.48	U	3.2		0.039	U+	0.088	U+	2.5		0.96	U	0.96	U	10		0.96	U	0.96	U	0.48	U	0.095	U+	0.96	U				
M6	MW308	MW308	10/9/2006	0.51	U	0.51	U	4.2		0.042	U+	0.092	U+	3		1	U	1	U	12		1	U	1	U	0.51	U	0.1	U+	1	U				
M6	MW308	MW308	4/26/2007	0.039	U+	0.033	U+	2		0.032	U+	0.071	U+	2.1		0.082	U+	0.14	U+	8.7		0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+				
M6	MW308	MW308	10/15/2007	0.047	U+	0.03	U+	1.5		0.082	U+	0.12	U+	2		0.15	U+	0.12	U+	7.6		0.11	U+	0.051	U+	0.044	U+	0.072	U+	0.11	U+				
M6	MW308	MW308	5/7/2008	0.39	U	0.39	U	0.86		0.39	U	0.78	U	1.5		0.78	U	0.78	U	6.2		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M6	MW308	MW308-DUP	5/7/2008	0.39	U	0.39	U	0.86		0.39	U	0.78	U	1.5		0.78	U	0.78	U	6.1		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				

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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
				Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
				Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF				
M6	MW309	MW309	10/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U				
M6	MW309	MW309	7/10/1998	0.38	U	0.32	U	5.4		0.24	U	0.44	U	80	U	0.8	U	NA		NA		NA		0.5	U	0.28	U	0.66	U	0.84	U				
M6	MW309	MW309	6/25/1999	0.39	U	0.39	U	1.9		0.31	U	0.31	U	9.8		0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U				
M6	MW309	MW309	10/29/1999	0.39	U	0.39	U	1.8		0.16	U	0.58	J	3.7		0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U*				
M6	MW309	MW309	5/15/2000	0.39	U	0.39	U	1.4		0.16	U	0.31	U	2.9		0.78	U	0.78	U	3.7		0.78	U	0.39	U	0.39	U	0.39	U*	0.78	U				
M6	MW309	MW309	10/24/2000	0.39	U	0.39	U	1.3		0.16	U	0.31	U	3.4		0.78	U	0.78	U	4.3		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U				
M6	MW309	MW309	5/21/2001	0.39	U	0.39	U	1.5		0.39	U	0.78	U*	2.9		0.78	U	0.78	U	3.5		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U				
M6	MW309	MW309	10/19/2001	0.59	U	0.59	U	2.2		0.59	U*	1.2	U*	5.2		1.2	U	1.2	U	7.5		1.2	U	0.59	U	0.59	U	0.59	U	1.2	U				
M6	MW309	MW309	5/8/2002	0.42	U	0.42	U	1.4		0.42	U	0.83	U	2.9		0.83	U	0.83	U	3.7		0.83	U	0.42	U	0.42	U	0.42	U	0.83	U				
M6	MW309	MW309	10/22/2002	0.51	U	0.51	U	1.7		0.055	U+	0.27	U+	3.7		1	U	1	U	4		1	U	1	U	0.51	U	0.51	U	1	U				
M6	MW309	MW309	5/15/2003	0.39	U	0.39	U	1.4		0.042	U+	0.21	U+	3.3		0.78	U	0.78	U	4.2		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M6	MW309	MW309	10/17/2003	0.39	U	0.39	U	2.5		0.042	U+	0.8		5.2		0.78	U	0.78	U	6.9		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M6	MW309	MW309	5/24/2004	0.44	U	0.44		3.7		0.048	U+	0.23	U+	4.1		0.88	U	0.88	U	5.2		0.88	U	0.88	U	0.44	U	0.44	U	0.88	U				
M6	MW309	MW309	10/20/2004	0.72	U	0.72	U	3.4		0.22	U+	0.26	U+	5.6		1.4	U	1.4	U	7		1.4	U	1.4	U	0.72	U	0.72	U	1.4	U				
M6	MW309	MW309	7/14/2005	0.39	U	0.39	U	1.9		0.032	U+	0.071	U+	3.3		0.78	U	0.78	U	4		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U				
M6	MW309	MW309	10/18/2005	0.4	U	0.4	U	3.2		0.033	U+	0.91		5.8		0.81	U	0.81	U	7.6		0.81	U	0.81	U	0.4	U	0.08	U+	0.81	U				
M6	MW309	MW309	5/1/2006	0.39	U	0.39	U	3.8		0.032	U+	0.071	U+	3.6		0.78	U	0.78	U	7.4		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U				
M6	MW309	MW309	10/6/2006	0.39	U	0.39	U	4.8		0.39	U+	0.96		6		0.91		0.78	U	15		0.78	U	0.78	U	0.39	U	0.39	U+	0.78	U				
M6	MW309	MW309	4/23/2007	0.044	U+	0.037	U+	1.8		0.036	U+	0.08	U+	2.9		0.093	U+	0.16	U+	6.8		0.093	U+	0.14	U+	0.036	U+	0.087	U+	0.074	U+				
M6	MW309	MW309	10/11/2007	0.03	U+	0.019	U+	2.3		0.052	U+	0.074	U+	4.4		0.093	U+	0.079	U+	9.8		0.073	U+	0.032	U+	0.028	U+	0.046	U+	0.068	U+				
M6	MW309	MW309	5/8/2008	0.56	U	0.56	U	1.4		0.56	U	1.1	U	2.6		1.1	U	1.1	U	5.6		1.1	U	1.1	U	0.56	U	0.56	U	1.1	U				

**Summary of Historical Explosives Groundwater Analytical Results  
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Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5- Trinitrobenzene		1,3- Dinitrobenzene		2,4,6- Trinitrotoluene (TNT)		2,4- Dinitrotoluene		2,6- Dinitrotoluene		2-Amino-4,6- Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6- Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW310	MW310	10/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M6	MW310R	MW310R	12/9/1998	1.2	U	1.2	U	0.6		1.2	U	1.2	U	1.2	U	2.6	U	NA		NA		NA		2.6	U	1.2	U	2.6	U	2.6	U		
M6	MW310R	MW310R	6/25/1999	0.42	U	0.42	U	0.42	U	0.34	U	0.34	U	0.84	U	0.84	U	NA		NA		NA		0.42	U	0.42	U	0.42	U	0.84	U		
M6	MW310R	MW310R	10/29/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U*		
M6	MW310R	MW310R	5/15/2000	0.49	U	0.49	U	0.49	U	0.19	U	0.39	U	0.97	U	0.97	U	0.97	U	0.97	U	0.97	U	0.49	U	0.49	U	0.49	U*	0.97	U		
M6	MW310R	MW310R	10/24/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW310R	MW310R	5/21/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW310R	MW310R	10/19/2001	0.57	U	0.57	U	0.57	U	0.57	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	0.57	U	1.1	U		
M6	MW310R	MW310R	5/8/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW310R	MW310R	10/22/2002	0.57	U	0.57	U	0.57	U	0.061	U+	0.3	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	1.1	U		
M6	MW310R	MW310R	5/15/2003	0.43	U	0.43	U	0.43	U	0.046	U+	0.23	U+	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.43	U	0.86	U		
M6	MW310R	MW310R	10/17/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW310R	MW310R	5/24/2004	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U		
M6	MW310R	MW310R	10/20/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW310R	MW310R	7/14/2005	0.46	U	0.46	U	0.46	U	0.037	U+	0.083	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.09	U+	0.91	U		
M6	MW310R	MW310R	10/18/2005	0.59	U	0.59	U	0.59	U	0.049	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.59	U	0.12	U+	1.2	U		
M6	MW310R	MW310R	5/1/2006	0.4	U	0.4	U	0.4	U	0.033	U+	0.073	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.08	U+	0.81	U		
M6	MW310R	MW310R	10/6/2006	0.39	U	0.39	U	0.39	U	0.39	U+	0.78	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U+	0.78	U		
M6	MW310R	MW310R	4/23/2007	0.042	U+	0.035	U+	0.038	U+	0.034	U+	0.076	U+	0.037	U+	0.087	U+	0.15	U+	0.079	U+	0.087	U+	0.13	U+	0.034	U+	0.082	U+	0.069	U+		
M6	MW310R	MW310R	10/11/2007	0.037	U+	0.023	U+	0.04	U+	0.064	U+	0.09	U+	0.063	U+	0.11	U+	0.097	U+	0.089	U+	0.089	U+	0.04	U+	0.034	U+	0.056	U+	0.083	U+		
M6	MW310R	MW310R	5/8/2008	0.57	U	0.57	U	0.57	U	0.57	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	1.1	U		

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Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW311	MW311	10/15/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M6	MW311	MW311	7/10/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M6	MW311	MW311	6/29/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW311	MW311	10/27/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U*		
M6	MW311	MW311	5/18/2000	0.45	U	0.45	U	0.45	U	0.18	U	0.36	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.45	U	0.45	U	0.45	U	0.91	U		
M6	MW311	MW311	10/23/2000	0.45	U	0.45	U	0.45	U*	0.18	U	0.36	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.45	U	0.45	U	0.45	U	0.91	U		
M6	MW311	MW311	5/18/2001	0.55	U	0.55	U	0.55	U	0.55	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U		
M6	MW311	MW311	10/22/2001	0.62	U	0.62	U	0.62	U	0.62	U*	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	0.62	U	1.2	U		
M6	MW311	MW311	5/1/2002	0.5	U	0.5	U	0.5	U	0.5	U*	1	U*	1	U	1	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	1	U		
M6	MW311	MW311	10/21/2002	0.49	U	0.49	U	0.49	U	0.053	U+	0.26	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U		
M6	MW311	MW311	5/13/2003	0.55	U	0.55	U	0.55	U	0.059	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U		
M6	MW311	MW311	10/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW311	MW311	5/19/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW311	MW311	10/22/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW311	MW311	7/19/2005	0.62	U	0.62	U	0.62	U	0.051	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.12	U+	1.2	U		
M6	MW311	MW311	10/19/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW311	MW311	5/2/2006	0.63	U	0.63	U	0.63	U	0.052	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.63	U	0.12	U+	1.3	U		
M6	MW311	MW311	10/10/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW311	MW311	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M6	MW311	MW311	10/8/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+		
M6	MW311	MW311	5/5/2008	0.52	U	0.52	U	0.52	U	0.52	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U		
M6	MW311-PER	MW311-PER	7/21/2005	0.55	U	0.55	U	0.69		0.045	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.11	U+	1.1	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
Minimum RG	5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200						
Risk Based RG	5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200						
Surface Water RG	15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS						
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW312	MW312	10/15/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M6	MW312	MW312	7/10/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M6	MW312	MW312	6/29/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW312	MW312	10/27/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U	U*	
M6	MW312	MW312	5/18/2000	0.43	U	0.43	U	0.43	U	0.17	U	0.34	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.43	U	0.43	U	0.86	U		
M6	MW312	MW312	10/23/2000	0.39	U	0.39	U	0.6	U*	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW312	MW312	5/18/2001	0.65	U	0.65	U	0.65	U	1.3	U*	1.3	U*	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	0.65	U	1.3	U		
M6	MW312	MW312	10/22/2001	0.49	U	0.49	U	0.49	U	0.49	U*	0.98	U*	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.49	U	0.98	U		
M6	MW312	MW312	5/1/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW312	MW312	10/21/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW312	MW312	5/13/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW312	MW312	10/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW312	MW312	5/19/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW312	MW312	10/22/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW312	MW312	7/19/2005	0.49	U	0.49	U	0.49	U	0.04	U+	0.089	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.096	U+	0.98	U		
M6	MW312	MW312	10/17/2005	0.41	U	0.41	U	0.41	U	0.41	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.41	U	0.82	U		
M6	MW312	MW312	5/2/2006	0.41	U	0.41	U	0.41	U	0.034	U+	0.075	U+	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.081	U+	0.82	U		
M6	MW312	MW312	10/10/2006	0.44	U	0.44	U	0.44	U	0.036	U+	0.079	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.086	U+	0.87	U		
M6	MW312	MW312	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M6	MW312	MW312	10/8/2007	0.044	U+	0.028	U+	0.047	U+	0.077	U+	0.11	U+	0.075	U+	0.14	U+	0.12	U+	0.11	U+	0.11	U+	0.047	U+	0.041	U+	0.067	U+	0.1	U+		
M6	MW312	MW312	5/5/2008	0.42	U	0.42	U	0.42	U	0.42	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.42	U	0.83	U		
M6	MW312-PER	MW312-PER	7/21/2005	0.64	U	0.64	U	0.64	U	0.053	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.13	U+	1.3	U		



**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW313	MW313	10/15/1991	1.39		1.55		5.98		1.04		1.94		NA		0.406	U	NA		NA		NA		1.21	U	2.54		1.17	U	2.49	U
M6	MW313	MW313	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW313	MW313-DUP	7/13/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW313	MW313	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW313	MW313	10/29/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U*
M6	MW313	MW313	5/15/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U*	0.39	U	0.39	U	0.78	U
M6	MW313	MW313	10/24/2000	0.5	U	0.5	U	0.5	U	0.2	U	0.4	U	1	U	1	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	1	U
M6	MW313	MW313	5/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW313	MW313	10/25/2001	0.55	U	0.55	U	0.55	U	0.55	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U
M6	MW313	MW313	5/8/2002	0.47	U	0.47	U	0.47	U	0.47	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.47	U	0.94	U
M6	MW313	MW313	10/22/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW313	MW313	5/16/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW313	MW313	10/17/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW313	MW313	5/24/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	1.8		0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW313	MW313	10/22/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW313	MW313	7/19/2005	0.63	U	0.63	U	0.63	U	0.052	U+	0.11	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.63	U	0.12	U+	1.3	U
M6	MW313	MW313	10/19/2005	0.45	U	0.45	U	0.45	U	0.037	U+	0.082	U+	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.089	U+	0.9	U
M6	MW313	MW313	5/2/2006	0.58	U	0.58	U	0.58	U	0.048	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.12	U+	1.2	U
M6	MW313	MW313	10/11/2006	0.6	U	0.6	U	0.6	U	0.05	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.12	U+	1.2	U
M6	MW313	MW313	4/30/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M6	MW313	MW313	10/10/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M6	MW313	MW313	5/7/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW314	MW314	10/14/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.382		NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M6	MW314	MW314	7/10/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW314	MW314	6/25/1999	0.4	U	0.4	U	0.4	U	0.32	U	0.32	U	3.6		0.79	U	NA		NA		NA		0.4	U	0.4	U	0.4	U	0.7	U
M6	MW314	MW314	11/3/1999	0.39	U	0.39	U	0.74		0.16	U	2.2		8.8		0.78	U*	0.78	U	12		0.78	U	0.39	U	0.39	U*	0.39		0.78	U*
M6	MW314	MW314	5/15/2000	0.55	U	0.55	U	0.55	U	0.95		0.44	U	8.6		1.1	U	1.1	U	10		1.1	U	0.55	U	0.55	U	0.55	U*	1.1	U
M6	MW314	MW314	10/26/2000	0.7	U	0.7	U	0.7	U	0.28	U	2.2		4.8		1.4	U	1.4	U	6.9		1.4	U	0.7	U	0.81		0.7	U	1.4	U
M6	MW314	MW314	5/30/2001	0.49	U	0.49	U	0.49	U	0.49	U*	0.98	U*	2.9		0.78	U	0.98	U	3.8		0.98	U	0.49	U	0.49	U	0.49	U	0.98	U
M6	MW314	MW314	11/1/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	2.1		0.78	U	0.78	U	2.9		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW314	MW314	5/9/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	1.2		0.78	U	0.78	U	1.8		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW314	MW314	10/23/2002	0.64	U	0.64		0.64	U	0.069	U+	0.34	U+	1.5		1.3	U	1.3	U	2.3		1.3	U	1.3	U	0.64	U	0.64	U	1.3	U
M6	MW314	MW314	5/14/2003	0.59	U	0.59		0.59	U	0.064	U+	0.31	U+	1.2	U	1.2	U	1.2	U	1.4		1.2	U	1.2	U	0.59	U	0.59	U	1.2	U
M6	MW314	MW314	10/16/2003	0.39	U	0.39		0.39	U	0.042	U+	0.21	U+	1.5		0.78	U	0.78	U	2.3		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW314	MW314	5/21/2004	0.42	U	0.42	U	0.42	U	0.045	U+	0.22	U+	1.1		0.83	U	0.83	U	1.6		0.83	U	0.83	U	0.42	U	0.42	U	0.83	U
M6	MW314	MW314	10/20/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	1.1		0.78	U	0.78	U	1.7		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW314	MW314	7/18/2005	0.53	U	0.53	U	0.53	U	0.044	U+	0.097	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.11	U+	1.1	U
M6	MW314	MW314	10/17/2005	0.48	U	0.48	U	0.48	U	0.039	U+	0.088	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.095	U+	0.96	U
M6	MW314	MW314	5/1/2006	0.4	U	0.4	U	0.4	U	0.033	U+	0.073	U+	0.81	U	0.81	U	0.81	U	0.99		0.81	U	0.81	U	0.4	U	0.08	U+	0.81	U
M6	MW314	MW314	10/9/2006	0.6	U	0.6	U	0.6	U	0.049	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.12	U+	1.2	U
M6	MW314	MW314	4/25/2007	0.067	U+	0.057	U+	0.062	U+	0.055	U+	0.12	U+	0.06	U+	0.14	U+	0.24	U+	0.13	U+	0.14	U+	0.21	U+	0.055	U+	0.13	U+	0.11	U+
M6	MW314	MW314	10/11/2007	0.045	U+	0.029	U+	0.049	U+	0.079	U+	0.11	U+	0.077	U+	0.14	U+	0.12	U+	0.11	U+	0.11	U+	0.049	U+	0.042	U+	0.069	U+	0.1	U+
M6	MW314	MW314	5/8/2008	0.64	U	0.64	U	0.64	U	0.64	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.64	U	1.3	U

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Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200			
Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200			
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW315	MW315	10/14/1991	0.449	U	0.611	U	0.635	U	0.701		0.456		NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M6	MW315	MW315	7/10/1998	0.19	U	0.16	U	4.8		5.2		0.22	U	48		0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	MW315	MW315	6/25/1999	0.39	U	0.39	U	4		1.1	Q	1.1	Q	9.2		4		NA		NA		NA		0.39	U	0.39	U	1.1		0.78	U
M6	MW315	MW315	11/3/1999	1.9	U	1.9	U	16		8.9		1.6	U	54		3.9	U*	3.9	U	46		3.9	U	1.9	U	1.9	U*	1.9	U	3.9	U*
M6	MW315	MW315	5/15/2000	0.52	U	0.52	U	16	D/DJ	7.1		4		42	D/DJ	1	U	1	U	40	D/DJ	1	U	0.52	U	0.52	U	0.52	U*	1	U
M6	MW315	MW315	10/26/2000	0.51	U	0.51	U	13	D	5.2		2		38	D	1	U	1	U	38	D	1	U	0.51	U	1.3		0.51	U	1	U
M6	MW315	MW315	5/30/2001	0.49	U*	0.49	U*	290	J	11	J	4.9	J	62	J	0.98	U*	0.98	U*	64	J	0.98	U*	0.49	U*	0.49	U*	1.6	J	0.98	U*
M6	MW315	MW315	11/1/2001	0.39	U	0.39	U	150		8.8		2.7		68		2.8		0.78	U	71		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW315	MW315-DUP	11/1/2001	0.39	U	0.39	U	160		9		2.9		72		1		0.78	U	74		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW315	MW315	5/9/2002	0.39	U	0.39	U	250		8.1		2.4		90		0.78	U	0.78	U	79		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW315	MW315	10/23/2002	0.44	U	0.44	U	0.44	U	0.048	U+	0.23	U+	1.8	J	0.88	U	0.88	U	1.6	J	0.88	U	0.88	U	0.44	U	0.44	U	0.88	U
M6	MW315	MW315	5/14/2003	0.49	U	0.49	U	11		0.052	U+	0.26	U+	26		0.98	U	0.98	U	20		0.98	U	0.98	U	0.49	U	0.49	U	0.98	U
M6	MW315	MW315	10/16/2003	0.62	U	0.62	U	4.4		1.2		0.33	U+	41		1.2	U	1.2	U	34		1.2	U	1.2	U	0.62	U	0.62	U	1.2	U
M6	MW315	MW315	5/20/2004	0.58	U	0.58	U	0.58	U	0.063	U+	0.31	U+	3.1		1.2	U	1.2	U	2.7		1.2	U	1.2	U	0.58	U	0.58	U	1.2	U
M6	MW315	MW315	10/21/2004	0.56	U	0.56	U	0.56	U	0.17	U+	0.2	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.56	U	0.56	U	1.1	U
M6	MW315	MW315	7/18/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW315	MW315	10/17/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW315	MW315	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	3.3		0.78	U	0.78	U	3.4		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW315	MW315	10/10/2006	0.68	U	0.68	U	0.68	U	0.056	U+	0.12	U+	4.1		1.4	U	1.4	U	4.4		1.4	U	1.4	U	0.68	U	0.13	U+	1.4	U
M6	MW315	MW315	4/25/2007	0.047	U+	0.04	U+	0.044	U+	0.039	U+	0.086	U+	2.6		0.1	U+	0.17	U+	3		0.1	U+	0.15	U+	0.039	U+	0.094	U+	0.079	U+
M6	MW315	MW315	10/11/2007	0.042	U+	0.027	U+	0.045	U+	0.074	U+	0.1	U+	0.072	U+	0.13	U+	0.11	U+	0.1	U+	0.1	U+	0.045	U+	0.039	U+	0.064	U+	0.096	U+
M6	MW315	MW315	5/8/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	1.2		0.78	U	0.78	U	1.6		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

**Summary of Historical Explosives Groundwater Analytical Results  
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Joliet Army Ammunition Plant - Wilmington, IL**

				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl				
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
				Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																		
				Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																		
Surface Water RG				15	4	75	330	150	NS	62	NS	NS	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M6	MW316	MW316	10/14/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U					
M6	MW316	MW316	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U					
M6	MW316	MW316	6/28/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U					
M6	MW316	MW316	11/3/1999	0.39	U	0.39	U	0.39	U*	0.16	U	0.31	U	0.78	U	0.78	U	3.8		0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U*					
M6	MW316	MW316	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	3.9	U	0.39	U	3.9	U	0.78	U					
M6	MW316	MW316	10/20/2000	3.9	U	3.9	U	3.9	U	1.6	U	3.1	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	3.9	U	3.9	U	3.9	U	7.8	U					
M6	MW316	MW316	5/30/2001	3.9	U	3.9	U	3.9	U	3.9	U	7.8	U*	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	3.9	U	3.9	U	3.9	U	7.8	U					
M6	MW316	MW316	11/1/2001	4	U	4	U	4	U	4	U*	8.1	U*	8.1	U	8.1	U	8.1	U	8.1	U	8.1	U	4	U	4	U	4	U*	8.1	U					
M6	MW316	MW316	5/8/2002	0.79	U	0.79	U	0.79	U	0.79	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.79	U	0.79	U	0.79	U	1.6	U					
M6	MW316	MW316	10/22/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U					
M6	MW316	MW316	5/13/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U					
M6	MW316	MW316	10/14/2003	0.4	U	0.4	U	0.4	U	0.043	U+	0.21	U+	0.81	U	0.81	U	0.78	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.81	U					
M6	MW316	MW316	5/19/2004	0.7	U	0.7	U	0.7	U	0.076	U+	0.37	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.7	U	1.4	U					
M6	MW316	MW316	10/21/2004	2	U	2	U	2	U	0.61	U+	0.72	U+	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	2	U	2	U	3.9	U					
M6	MW316	MW316	7/14/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U					
M6	MW316	MW316	10/20/2005	0.72	U	0.72	U	0.72	U	0.059	U+	0.13	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.72	U	0.14	U+	1.4	U					
M6	MW316	MW316	5/3/2006	0.4	U	0.4	U	0.4	U	0.033	U+	0.073	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.08	U+	0.81	U					
M6	MW316	MW316	10/11/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U					
M6	MW316	MW316	4/25/2007	0.049	U+	0.041	U+	0.045	U+	0.04	U+	0.089	U+	0.044	U+	0.1	U+	0.17	U+	0.092	U+	0.1	U+	0.15	U+	0.04	U+	0.096	U+	0.081	U+					
M6	MW316	MW316	10/9/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+					
M6	MW316	MW316	5/2/2008	0.53	U	0.53	U	0.53	U	0.53	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U					

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				Compounds		1,3,5- Trinitrobenzene		1,3- Dinitrobenzene		2,4,6- Trinitrotoluene (TNT)		2,4- Dinitrotoluene		2,6- Dinitrotoluene		2-Amino-4,6- Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6- Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit				ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
Minimum RG				5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200			
Risk Based RG				5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200			
Surface Water RG				15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW317	MW317	10/14/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M6	MW317	MW317	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M6	MW317	MW317	6/28/1999	0.69	U	0.69	U	0.69	U	0.69	U	0.55	U	0.55	U	1.4	U	1.4	U	NA		NA		0.69	U	0.69	U	0.69	U	1.4	U		
M6	MW317	MW317	11/3/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U*	0.39	U	0.78	U*		
M6	MW317	MW317	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW317	MW317	10/20/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW317	MW317	5/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW317	MW317	11/1/2001	0.52	U	0.52	U	0.52	U	0.52	U*	1	U*	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	0.52	U	1	U		
M6	MW317	MW317	5/8/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW317	MW317	10/22/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW317	MW317	5/13/2003	0.46	U	0.46	U	0.46	U	0.046	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U		
M6	MW317	MW317	10/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW317	MW317	5/19/2004	0.58	U	0.58	U	0.58	U	0.063	U+	0.31	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U		
M6	MW317	MW317	10/21/2004	0.62	U	0.62	U	0.62	U	0.2	U+	0.23	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	1.2	U		
M6	MW317	MW317	7/14/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW317	MW317	10/20/2005	0.51	U	0.51	U	0.51	U	0.042	U+	0.092	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.1	U+	1	U		
M6	MW317	MW317	5/3/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW317	MW317	10/10/2006	0.44	U	0.44	U	0.44	U	0.036	U+	0.079	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.086	U+	0.87	U		
M6	MW317	MW317	4/25/2007	0.047	U+	0.04	U+	0.043	U+	0.038	U+	0.085	U+	0.042	U+	0.098	U+	0.16	U+	0.089	U+	0.098	U+	0.15	U+	0.038	U+	0.092	U+	0.078	U+		
M6	MW317	MW317	10/9/2007	0.044	U+	0.027	U+	0.047	U+	0.076	U+	0.11	U+	0.074	U+	0.13	U+	0.11	U+	0.11	U+	0.11	U+	0.047	U+	0.04	U+	0.066	U+	0.099	U+		
M6	MW317	MW317	5/7/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		



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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
				Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG				5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																		
Surface Water RG				15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																		
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW318	MW318	10/15/1991	0.449	U	7.33		0.635	U	0.637	U	0.669		NA		0.406	U	NA		NA		NA		1.21	U	44		1.17	U	2.49	U				
M6	MW318	MW318	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U				
M6	MW318	MW318	6/28/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U				
M6	MW318	MW318	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	8.4					
M6	MW318	MW318	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	3.9	U	0.78	U				
M6	MW318	MW318	10/20/2000	3.9	U	3.9	U	3.9	U	1.6	U	3.1	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	3.9	U	3.9	U	3.9	U	7.8	U				
M6	MW318	MW318	5/30/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U				
M6	MW318	MW318	11/1/2001	6	U*	6	U	6	U	6	U*	12	U*	12	U	12	U	12	U	12	U	12	U	6	U	6	U	6	U*	12	U				
M6	MW318	MW318	5/8/2002	4.4	U	4.4	U	4.4	U	4.4	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	8.7	U	4.4	U	4.4	U	4.4	U	87	U				
M6	MW318	MW318	10/21/2002	2	U*	2	U*	2	U*	0.21	U*+	1	U*+	3.9	U*	3.9	U*	3.9	U*	3.9	U*	3.9	U*	3.9	U*	2	U*	2	U*	3.9	U*				
M6	MW318	MW318	5/14/2003	0.66	U	0.66	U	0.66	U	0.071	U+	0.35	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.66	U	0.66	U	1.3	U				
M6	MW318	MW318	10/14/2003	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	6.1		0.46	U	0.46	U	0.91	U				
M6	MW318	MW318	5/19/2004	0.65	U	0.65	U	0.65	U	0.07	U+	0.35	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	1.3	U*				
M6	MW318	MW318	10/21/2004	2	U	2	U	2	U	0.61	U+	6.7	J	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	2	U	2	U	3.9	U				
M6	MW318	MW318	7/13/2005	0.55	U	0.55	U	0.55	U	0.045	U+	0.099	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U				
M6	MW318	MW318-DUP	7/13/2005	0.55	U	0.55	U	0.55	U	0.045	U+	0.099	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U				
M6	MW318	MW318	10/18/2005	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.087	U+	0.88	U				
M6	MW318	MW318-DUP	10/18/2005	0.44	U	0.44	U	0.44	U	0.036	U+	0.079	U+	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.086	U+	0.87	U				
M6	MW318	MW318	5/2/2006	0.78	U	0.78	U	0.78	U	0.064	U+	0.14	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	2.4		0.78	U	0.15	U+	1.6	U				
M6	MW318	MW318-DUP	5/2/2006	0.78	U	0.78	U	0.78	U	0.064	U+	0.14	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	4.1		0.78	U	0.15	U+	1.6	U				
M6	MW318	MW318	10/10/2006	0.47	U	0.47	U	0.47	U	0.039	U+	0.086	U+	0.95	U	0.95	U	4.4	/JI	0.95	U	0.95	U	0.95	U	0.47	U	0.094	U+	0.95	U				
M6	MW318	MW318-DUP	10/10/2006	0.4	U	0.4	U	0.4	U	0.033	U+	0.072	U+	0.79	U	0.79	U	2.8	/JI	0.79	U	0.79	U	0.79	U	0.4	U	0.078	U+	0.79	U				
M6	MW318	MW318	4/23/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+				
M6	MW318	MW318	10/9/2007	0.036	U+	0.022	U+	0.038	U+	0.062	U+	0.087	U+	0.061	U+	0.11	U+	0.093	U+	0.086	U+	0.086	U+	0.038	U+	0.033	U+	0.054	U+	0.08	U+				
M6	MW318	MW318	5/7/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				

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Joliet Army Ammunition Plant - Wilmington, IL**

Site		Well ID		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200			
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW319	MW319	10/15/1991	0.449	U	8.76		0.635	U	0.064	U	1.31		NA		0.406	U	NA		NA		NA		1.21	U	54.5		1.17	U	2.49	U		
M6	MW319	MW319	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M6	MW319	MW319	6/28/1999	2.3	U	2.3	U	2.3	U	1.9	U	1.9	U	11		4.7	U	NA		NA		NA		2.3	U	2.3	U	2.3	U	4.7	U		
M6	MW319	MW319	10/26/1999	3.9	U	3.9	U	3.9	U	1.6	U	4.9		7.8	U	7.8	U	NA		NA		NA		3.9	U	3.9	U	3.9	U	9.7			
M6	MW319	MW319	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	3.9	U	0.78	U
M6	MW319	MW319	10/20/2000	3.9	U	3.9	U	3.9	U	1.6	U	3.1	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	3.9	U	3.9	U	18		7.8	U		
M6	MW319	MW319	5/21/2001	4.4	U*	4.4	U*	4.4	U*	4.4	U*	8.8	U*	8.8	U*	8.8	U*	8.8	U*	8.8	U*	8.8	U*	4.4	U*	4.4	U*	4.4	U*	8.8	U*		
M6	MW319	MW319	11/1/2001	5.2	U*	5.2	U	5.2	U	5.2	U*	10	U*	10	U	10	U	10	U	10	U	10	U	5.2	U	5.2	U	5.2	U*	10	U		
M6	MW319	MW319	5/8/2002	3.9	U	3.9	U	3.9	U	3.9	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	3.9	U	3.9	U	3.9	U	7.8	U		
M6	MW319	MW319-DUP	5/8/2002	3.9	U	3.9	U	3.9	U	3.9	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	3.9	U	3.9	U	3.9	U	7.8	U		
M6	MW319	MW319	10/21/2002	2	U*	2	U*	2	U*	0.21	U*	1	U*	3.9	U*	3.9	U*	3.9	U*	3.9	U*	3.9	U*	3.9	U*	2	U*	2	U*	3.9	U*		
M6	MW319	MW319	5/14/2003	2	U	2	U	2	U	0.21	U+	1	U+	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	2	U	2	U	3.9	U		
M6	MW319	MW319	10/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW319	MW319	5/19/2004	0.42	U	0.42	U	0.42	U	0.046	U+	0.22	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U/J		
M6	MW319	MW319	10/21/2004	2.7	U	2.7	U	2.7	U	0.83	U+	0.98	U+	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	2.7	U	2.7	U	5.3	U		
M6	MW319	MW319	7/13/2005	0.49	U	0.49	U	0.49	U	0.041	U+	0.09	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U		
M6	MW319	MW319	10/18/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW319	MW319	5/2/2006	0.78	U	0.78	U	0.78	U	0.064	U+	0.14	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	8.9		0.78	U	0.15	U+	1.6	U		
M6	MW319	MW319	10/10/2006	0.43	U	0.43	U	0.43	U	0.035	U+	11	/JL	0.86	U	0.86	U	6.7		0.86	U	0.86	U	0.86	U	0.43	U	0.085	U+	0.86	U		
M6	MW319	MW319	4/23/2007	0.041	U+	0.035	U+	0.038	U+	0.034	U+	2	/JL	0.037	U+	0.086	U+	0.14	U+	0.078	U+	0.086	U+	0.13	U+	0.034	U+	0.081	U+	0.068	U+		
M6	MW319	MW319	10/9/2007	0.046	U+	0.029	U+	0.05	U+	0.081	U+	0.11	U+	0.079	U+	0.14	U+	0.12	U+	0.11	U+	0.11	U+	0.05	U+	0.043	U+	0.07	U+	0.1	U+		
M6	MW319	MW319	5/7/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		

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			Compounds		1,3,5- Trinitrobenzene		1,3- Dinitrobenzene		2,4,6- Trinitrotoluene (TNT)		2,4- Dinitrotoluene		2,6- Dinitrotoluene		2-Amino-4,6- Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6- Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl					
					Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
					Minimum RG		5.1		4		9.5		0.42		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
					Risk Based RG		5.1		10		9.5		0.42		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
					Surface Water RG		15		4		75		330		150		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF					
M6	MW320	MW320	10/15/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U					
M6	MW320	MW320	7/10/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U					
M6	MW320	MW320	6/29/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U					
M6	MW320	MW320	10/28/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U					
M6	MW320	MW320-DUP	10/28/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U					
M6	MW320	MW320	5/18/2000	0.49	U	0.49	U	0.49	U	0.49	U	0.19	U	0.39	U	0.97	U	0.97	U	0.97	U	0.97	U	0.49	U	0.49	U	0.49	U	0.97	U					
M6	MW320	MW320	10/23/2000	0.39	U	0.39	U	0.64	U*	0.16	U	0.31		0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U					
M6	MW320	MW320	4/26/2001	0.16	U	0.16	U	0.16	U	0.16	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.78	U	0.39	U	0.16	U	0.16	U	0.31	U					
M6	MW320R	MW320R	10/22/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U					
M6	MW320R	MW320R	5/1/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U					
M6	MW320R	MW320R	10/16/2002	0.53	U	0.53	U	0.53	U	0.057	U+	0.28	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U					
M6	MW320R	MW320R	5/13/2003	0.6	U	0.6	U	0.6	U	0.065	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	1.2	U					
M6	MW320R	MW320R	10/13/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U					
M6	MW320R	MW320R	5/19/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U					
M6	MW320R	MW320R	10/25/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U					
M6	MW320R	MW320R	7/19/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U					
M6	MW320R	MW320R	10/17/2005	0.51	U	0.51	U	0.51	U	0.042	U+	0.093	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.1	U+	1	U					
M6	MW320R	MW320R	5/2/2006	0.39	U	0.39	U	0.55		2.2	U+	0.071	U+	0.78	U	2.1		0.78	U	0.78	U	1.9		0.78	U	0.39	U	0.077	U+	0.78	U					
M6	MW320R	MW320R	10/10/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U					
M6	MW320R	MW320R	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+					
M6	MW320R	MW320R	10/8/2007	0.045	U+	0.029	U+	0.049	U+	0.079	U+	0.11	U+	0.077	U+	0.14	U+	0.12	U+	0.11	U+	0.11	U+	0.049	U+	0.042	U+	0.069	U+	0.1	U+					
M6	MW320R	MW320R	5/5/2008	0.47	U	0.47	U	0.47	U	0.47	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.47	U	0.47	U	0.95	U					
M6	MW320R-PER	MW320R-PER	7/21/2005	0.57	U	0.57	U	0.57	U	0.047	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.11	U+	1.1	U					

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Site		Well ID		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200					
Risk Based RG		5.1		10		9.5		0.42		NC		5100		NC		NC		NC		NC		5100		51		2.6		200					
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW650	MW650	6/29/1999	0.39	U	0.39	U	0.39	U	0.46	Q	0.46	Q	16		0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW650	MW650	10/27/1999	0.39	U	0.39	U	4.4		1.1		2.7		17		0.98		NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U/R		
M6	MW650	MW650	5/18/2000	0.39	U	0.39	U	2.4		0.45		2.4		9.6		2		0.78	U	8.8		1.9		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW650	MW650-DUP	5/18/2000	0.39	U	0.39	U	2.4		0.54		2.5		9.6		2		0.78	U	8.8		1.6		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW650	MW650	10/23/2000	0.39	U	0.39	U	5.2	J	5.4		6.2		20		5.5		0.78	U	14		3.1		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW650	MW650-DUP	10/23/2000	0.39	U	0.39	U	5.1	B/BJ	6		7		20	D	5.7		0.78	U	15	D	0.83		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW650	MW650	5/18/2001	0.66	U	0.66	U	3.1		1.1		4.7		13		1.9		1.3	U	9.9		1.5		0.66	U	0.66	U	0.66	U	1.3	U		
M6	MW650	MW650-DUP	5/18/2001	0.62	U	0.62	U	3		0.97		4.6		12		2.1		1.2	U	9.7		1.6		0.62	U	0.62	U	0.62	U	1.2	U		
M6	MW650	MW650	10/22/2001	0.68	U	0.68	U	5.1		11		8.7		20		12		1.4	U	17		6.5		0.68	U	0.68	U	0.68	U	1.4	U		
M6	MW650	MW650-DUP	10/22/2001	0.49	U	0.49	U	5.2		11		8.8		20		12		1.2		17		6.5		0.49	U	0.49	U	0.49	U	0.98	U		
M6	MW650	MW650	5/1/2002	0.42	U	0.42	U	3.9		1.4		6.7		16		2.3		0.83	U	12		3.2		0.42	U	0.42	U	0.42	U	0.83	U		
M6	MW650	MW650	10/22/2002	5.6		0.39	U	22		23		63		56		210		5.4		44		34		0.78	U	2.5		0.39	U	0.78	U		
M6	MW650	MW650-DUP	10/22/2002	5.1		0.48	U	18		20		54		49		170		4		39		26		0.96	U	27		0.48	U	0.96	U		
M6	MW650	MW650	5/15/2003	0.52	U	0.52	U	9.8		2.2		12		30		1	U	1	U	20		1.1		1	U	0.52	U	0.52	U	1	U		
M6	MW650	MW650-DUP	5/15/2003	0.45	U	0.45	U	9.8		2.4		13		30		0.9	U	0.9	U	20		0.9	U	0.9	U	0.45	U	0.45	U	0.9	U		
M6	MW650	MW650	10/15/2003	0.43	U	0.43	U	26		26		100		75		220		9		50		40		0.86	U	4		0.43	U	0.86	U		
M6	MW650	MW650-DUP	10/15/2003	0.44	U	0.44	U	27		28		100		77		220		8.8		51		39		0.88	U	3.9		0.44	U	0.88	U		
M6	MW650	MW650	5/20/2004	0.96	U	0.96	U	37		36		120		81		250		14		50		20		1.9	U	0.96	U	0.96	U	1.9	U		
M6	MW650	MW650-DUP	5/20/2004	0.47	U	0.47	U	34		34		120		76		240		14		46		25		0.95	U	0.47	U	0.47	U	0.95	U		
M6	MW650	MW650	10/22/2004	0.39	U	0.39	U	36		99		170		96		360		27		57		190		0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW650	MW650-DUP	10/22/2004	0.4	U	0.4	U	38	J	110		180		100	J	400		28	J	59	J	210		0.81	U	0.4	U	0.4	U	0.81	U		
M6	MW650	MW650	7/19/2005	0.59	U	0.59	U	20		110		110		66		340		18		39		79		1.2	U	0.59	U	0.12	U+	1.2	U		
M6	MW650	MW650	10/17/2005	0.51	U	0.51	U	13		81		78		52		170		14		32		97		1	U	0.51	U	0.1	U+	1	U		
M6	MW650	MW650	5/1/2006	0.4	U	0.4	U	7.6		0.033	U+	6.9		31		0.81	U	0.81	U	20		0.81	U	0.81	U	0.4	U	0.08	U+	0.81	U		
M6	MW650	MW650	10/9/2006	8.8	U	8.8	U	23		170		130		85	/JI	280		27		48		160		18	U	8.8	U	1.7	U+	18	U		
M6	MW650	MW650	4/25/2007	0.039	U+	0.033	U+	5.5		26		21		36		0.082	U+	0.14	U+	21		0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M6	MW650	MW650-DUP	4/25/2007	0.039	U+	0.033	U+	5.5		29		23		35		0.082	U+	0.14	U+	20		1.9		0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M6	MW650	MW650	10/4/2007	0.047	U+	0.029	U+	8.1		130		86		43		190		18		30		110		0.05	U+	0.043	U+	0.071	U+	0.11	U+		
M6	MW650	MW650	5/5/2008	0.58	U	0.58	U	4.6		0.58	U	3.7	JL	28		1.2	U	1.2	U	16		1.2	U	1.2	U	0.58	U	0.58	U	1.2	U		
M6	MW650-PER	MW650-PER	7/21/2005	0.51	U	0.51	U	0.51	U	0.042	U+	0.092	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.1	U+	1	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW651	MW651	6/29/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.86		NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M6	MW651	MW651	10/27/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U/R		
M6	MW651	MW651	5/18/2000	0.58	U	0.58	U	0.58	U	0.23	U	0.47	U	1.2	U	2.3		1.2	U	1.2	U	1.9		0.58	U	0.58	U	0.58	U	1.2	U		
M6	MW651	MW651	10/23/2000	0.55	U	0.55	U	0.6	U	0.22	U	0.44	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	0.55	U	1.1	U		
M6	MW651	MW651	5/18/2001	0.66	U	0.66	U	0.66	U	0.66	U	1.3	U	1.3	U	1.8		1.3	U	1.3	U	1.8		0.66	U	0.66	U	0.66	U	1.3	U		
M6	MW651	MW651	10/22/2001	0.62	U	0.62	U	0.62	U	0.62	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	0.62	U	1.2	U		
M6	MW651	MW651	5/1/2002	0.4	U	0.4	U	0.4	U	0.4	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.4	U	0.81	U		
M6	MW651	MW651	10/21/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW651	MW651	5/15/2003	0.39	U	0.39	U	0.39	U	1.51		0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW651	MW651	10/15/2003	0.44	U	0.44	U	0.44	U	0.62		0.23	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.44	U	0.88	U		
M6	MW651	MW651	5/20/2004	0.46	U	0.46	U	0.46	U	0.52		0.24	U+	0.91	U	1.4		0.91	U	0.91	U	1.3		0.91	U	0.46	U	0.46	U	0.91	U		
M6	MW651	MW651	10/22/2004	0.39	U	0.39	U	0.39	U	0.7		0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M6	MW651	MW651	7/19/2005	0.55	U	0.55	U	0.55	U	0.045	U+	0.099	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.11	U+	1.1	U		
M6	MW651	MW651	10/17/2005	0.46	U	0.46	U	0.46	U	0.037	U+	0.083	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.09	U+	0.91	U		
M6	MW651	MW651	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M6	MW651	MW651	10/9/2006	0.55	U	0.55	U	0.55	U	0.045	U+	0.099	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.11	U+	1.1	U		
M6	MW651	MW651	4/25/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M6	MW651	MW651	10/4/2007	0.031	U+	0.019	U+	0.033	U+	0.55		0.075	U+	0.052	U+	0.094	U+	0.08	U+	0.074	U+	0.074	U+	0.033	U+	0.028	U+	0.046	U+	0.069	U+		
M6	MW651	MW651	5/5/2008	0.59	U	0.59	U	0.59	U	0.59	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	1.2	U		
M6	MW651-PER	MW651-PER	7/21/2005	0.64	U	0.64	U	0.64	U	0.052	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.13	U+	1.3	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW652	MW652	6/25/1999	190	U	190	U	3400		14500	Q	14500	Q	390	U	68000		NA		NA		NA		190	U	190	U	190	U	390	U
M6	MW652	MW652-DUP	6/25/1999	240	U	240	U	3400		14500	Q	14500	Q	470	U	70000		NA		NA		NA		240	U	240	U	240	U	470	U
M6	MW652	MW652	10/29/1999	190	U	190	U	2000		8400		3300		390	U	38000		NA		NA		NA		190	U	190	U	190	U	390	U/R
M6	MW652	MW652-DUP	10/29/1999	300	U	300	U	2200		9600		3600		600	U	30000		NA		NA		NA		300	U	300	U	300	U	600	U/R
M6	MW652	MW652	5/16/2000	3.9	U	3.8		880	D/DJ	4500	D	3.1	U	88		17000	D	1300	D	7.8	U	12000	D	3.9	U	3.9	U	3.9	U	7.8	U
M6	MW652	MW652-DUP	5/16/2000	3.9	U	4.1		780	D	4100	D	3.1	U	86		15000	D	1200	D	7.8	U	10000	D	3.9	U	3.9	U	3.9	U	7.8	U
M6	MW652	MW652	10/24/2000	3.9	U	3.9	U	1100	D	6200	D	6500	D	67	D	25000	D	1900	D	84	D	15000	D	3.9	U	3.9	U	3.9	U	7.8	U
M6	MW652	MW652-DUP	10/24/2000	390	U	390	U	1400	D	6800	D	6400	D	780	U	26000	D/JD	1800	D	780	U	16000	D	390	U	390	U	390	U	780	U
M6	MW652	MW652	5/18/2001	7	U	7	U	1100		5300		14	U	110		23000		1400	U	60		14000		7	U	7	U	7	U	14	U
M6	MW652	MW652-DUP	5/18/2001	6	U	6	U	1100		5000		2700		110		22000		1800		60		14000		6	U	6	U	6	U	12	U
M6	MW652	MW652	10/24/2001	52	U	52	U	2000		8700		4000		170		41000		1000	U	210		25000		52	U	52	U	52	U	100	U
M6	MW652	MW652	5/8/2002	3.9	U	7.9		1300		5700		2100		150		26000		2200		120		17000		3.9	U	19		3.9	U	7.8	U
M6	MW652	MW652	10/22/2002	36		10		2000		7900		2600		180		36000		3000		150		23000		7.8	U	24		3.9	U	7.8	U
M6	MW652	MW652	5/15/2003	4	U	9.7		1400		6200		2200		150		27000		2300		86		17000		7.9	U	20		4	U	7.9	U
M6	MW652	MW652-DUP	5/15/2003	4.4	U	11		1700		7500		2700		180		34000		2700		110		21000		8.7	U	24		4.4	U	8.7	U
M6	MW652	MW652	10/17/2003	4	U	7.1		1300		4900		2000		130		19000		1600		72		13000		7.9	U	19		4	U	7.9	U
M6	MW652	MW652-DUP	10/17/2003	4.6	U	8.3		1500		5600		2300		150		23000		1800		86		14000		9.1	U	22		4.6	U	9.1	U
M6	MW652	MW652	5/24/2004	4.6	U	10		2100		7100		2700		220		35000		2700		130		23000		9.1	U	30		4.6	U	9.1	U
M6	MW652	MW652-DUP	5/24/2004	3.9	U	9.4		2100		6800		2500		200		34000		3000		120		23000		7.8	U	27		3.9	U	7.8	U
M6	MW652	MW652	10/21/2004	3.9	U	13		2300		10000		4900		300	J	47000		3700		190		31000		7.8	U	39		3.9	U	7.8	U
M6	MW652	MW652-DUP	10/21/2004	5.1	U	13		2400		14000		4900	J	290	J	66000		3800		180		43000		10	U	38		5.1	U	10	U
M6	MW652	MW652	7/13/2005	58	U	58	U	2200		10000		3500		280		56000		3900		120	U	37000		120	U	58	U	58	U	120	U
M6	MW652	MW652	10/18/2005	3.9	U+	9.3		3400		2100		5400		270		98000		5700		130		65000		7.8	U	25		0.77	U+	7.8	U
M6	MW652	MW652	5/1/2006	3.9	U+	3.3	U+	560		2900		970	M	78	U	11000		1000		78	U	8100		78	U	39	U	7.7	U+	78	U
M6	MW652	MW652	10/6/2006	42	U	42	U	1300		5100		1800	/JI	140		23000		1900		91		15000		85	U	42	U	8.3	U+	85	U
M6	MW652	MW652	4/24/2007	0.39	U+	0.33	U+	450		2200		670	/JI	60	/JI	9000		820		35		6700		1.2	U+	0.32	U+	0.77	U+	0.65	U+
M6	MW652	MW652	10/10/2007	2.7	U+	1.7	U+	1100		4600		1700		160	/JI	20000		1700		120		13000		2.9	U+	2.5	U+	4.1	U+	6.1	U+
M6	MW652	MW652	5/7/2008	3.9	U	4.8		710		3800		1300	NJI	80		17000		1400		90		12000		7.8	U	7.8	U	3.9	U	7.8	U
M6	MW652	MW652-DUP	5/7/2008	3.9	U	5.1		710		4100		1300	NJI	85		18000		1600		96		13000		7.8	U	10		3.9	U	7.8	U



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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW653	MW653	6/25/1999	0.39	U	0.39	U	0.39	U	5.5	Q	5.5	Q	0.78	U	16	NA	NA	NA	NA	NA	NA	NA	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW653	MW653	10/29/1999	0.39	U	0.39	U	0.39	U	0.34	J	0.31	U	0.78	U	1.2	J	NA	NA	NA	NA	NA	NA	0.39	U	0.39	U	0.39	U	0.78	U/R
M6	MW653	MW653	5/16/2000	0.39	U	0.39	U	0.39	U*	0.36		0.31	U	0.78	U	3.3	U	0.78	U	2.2	U	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW653	MW653	10/24/2000	0.39	U	0.39	U	0.39	U	0.69		0.31	U	0.78	U	0.78	U	1.2	U	0.78	U	1.9	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW653	MW653	5/18/2001	0.66	U	0.66	U	0.66	U	0.86		1.3	U*	1.3	U	4.3	U	1.3	U	2.7	U	0.66	U	0.66	U	0.66	U	0.66	U	1.3	U
M6	MW653	MW653	10/24/2001	0.42	U	0.42	U	0.42	U	0.6		0.85	U*	0.85	U	5.9	U	0.85	U	0.85	U	2.2	U	0.42	U	0.42	U	0.42	U	0.85	U
M6	MW653	MW653	5/8/2002	0.47	U	0.47	U	0.47	U	0.6		0.94	U	0.94	U	1.6	U	0.94	U	0.94	U	1.5	U	0.47	U	0.47	U	0.47	U	0.94	U
M6	MW653	MW653	10/22/2002	0.55	U	0.55	U	0.55	U	0.06	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U
M6	MW653	MW653	5/15/2003	0.54	U	0.54	U	0.54	U	1.2		0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.54	U	1.1	U
M6	MW653	MW653	10/20/2003	0.39	U	0.39	U	0.39	U	1	J	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW653	MW653	5/21/2004	0.74	U	0.74	U	0.74	U	1.4		0.39	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.74	U	0.74	U	1.5	U
M6	MW653	MW653	10/21/2004	0.39	U	0.39	U	0.39	U	0.7		0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW653	MW653	7/19/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW653	MW653	10/19/2005	0.6	U	0.6	U	0.6	U	0.049	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.12	U+	1.2	U
M6	MW653	MW653	5/1/2006	0.41	U	0.41	U	0.41	U	0.034	U+	0.075	U+	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.081	U+	0.82	U
M6	MW653	MW653	10/9/2006	0.75	U	0.75	U	0.75	U	0.061	U+	0.14	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.75	U	0.15	U+	1.5	U
M6	MW653	MW653	4/26/2007	0.04	U+	0.034	U+	0.037	U+	0.033	U+	0.072	U+	0.036	U+	0.083	U+	0.14	U+	0.075	U+	0.083	U+	0.12	U+	0.033	U+	0.078	U+	0.066	U+
M6	MW653	MW653	10/10/2007	0.036	U+	0.022	U+	0.038	U+	0.062	U+	0.087	U+	0.061	U+	0.11	U+	0.093	U+	0.086	U+	0.086	U+	0.038	U+	0.033	U+	0.054	U+	0.08	U+
M6	MW653	MW653	5/6/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW654	MW654	6/30/1999	0.39	U	0.39	U	0.39	U	1.4	Q	1.4	Q	0.78	U	9.6	NA	NA	NA	NA	NA	NA	NA	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW654	MW654-DUP	6/30/1999	1.8		0.39	U	0.39	U	0.16	U	0.31	U	1		1.6	NA	NA	NA	NA	NA	NA	NA	0.39	U	0.39	U	0.72		0.78	U
M6	MW654	MW654	5/15/2000	0.39	U	0.39	U	0.39	U	0.55		0.45		0.78	U	1.1		0.78	U	0.78	U	1		0.39	U*	0.39	U	0.39	U	0.78	U
M6	MW654	MW654	10/24/2000	0.39	U	0.39	U	0.39	U	0.75		0.8		0.78	U	1.3		0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW654	MW654	5/18/2001	0.78	U	0.78	U	0.78	U	0.78	U*	2		1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.78	U	0.78	U	0.78	U	1.6	U
M6	MW654	MW654	10/24/2001	0.39	U	0.39	U	0.39	U	1.7		1.2		0.78	U	12		1		0.78	U	8.3		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW654	MW654	5/8/2002	0.73	U	0.73	U	0.73	U	0.73	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.73	U	0.73	U	0.73	U	1.5	U
M6	MW654	MW654-DUP	5/8/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	1		0.78	U	1.1		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW654	MW654	10/22/2002	0.39	U	0.39	U	0.39	U	1.2		1.1		0.91		0.78	U	0.78	U	1.1		0.78	U	0.78	U	0.39	U	0.91		0.78	U
M6	MW654	MW654	5/15/2003	0.48	U	0.48	U	0.48	U	0.052	U+	0.26	U+	0.96	U	0.96	U	0.96	U	1.1		0.96	U	0.96	U	0.48	U	0.48	U	0.96	U
M6	MW654	MW654	10/20/2003	0.39	U	0.39	U	0.39	U	1.7	J	1.1		1.7		2		0.78	U	2.1		2.2		0.78	U	0.39	U	0.55		0.78	U
M6	MW654	MW654	5/21/2004	0.39	U	0.39	U	0.39	U	0.79		1.1		1.7		1.8		0.78	U	2.2		2		0.78	U	0.39	U	0.39	U	0.78	U
M6	MW654	MW654	10/22/2004	0.4	U	0.4	U	0.4	U	3		1.9		1.6		3.3		0.81	U	2		1.8		0.81	U	0.4	U	0.4	U	0.81	U
M6	MW654	MW654	7/13/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW654	MW654	10/18/2005	0.39	U	0.39	U	0.39	U	0.55		0.071	U+	0.78	U	1.1		0.78	U	0.85		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW654	MW654	5/2/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.88		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW654	MW654	10/6/2006	0.46	U	0.46	U	0.46	U	1.2		0.91	U+	0.91	U	1.3		0.91	U	1.2		0.91	U	0.91	U	0.46	U	0.46	U+	0.91	U
M6	MW654	MW654	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.95		0.071	U+	1.7		1.2		0.14	U+	3.2		0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M6	MW654	MW654	10/10/2007	0.03	U+	0.019	U+	0.032	U+	0.052	U+	0.074	U+	1.6		0.093	U+	0.079	U+	3		0.073	U+	0.032	U+	0.028	U+	3.4	/JL	0.068	U+
M6	MW654	MW654	5/6/2008	0.47	U	0.47	U	0.47	U	0.47	U	0.94	U	1.4		0.94	U	0.94	U	2.6		0.94	U	0.94	U	0.47	U	0.55		0.94	U

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW655	MW655	6/28/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW655	MW655-DUP	6/28/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW655	MW655	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	MW655	MW655	5/15/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U*	0.78	U
M6	MW655	MW655	10/20/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW655	MW655	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW655	MW655	10/25/2001	0.49	U	0.49	U	0.49	U	0.49	U*	0.98	U*	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.49	U	0.98	U
M6	MW655	MW655	5/3/2002	0.51	U	0.51	U	0.51	U	0.51	U	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.51	U	0.51	U	1	U
M6	MW655	MW655	10/17/2002	0.57	U	0.57	U	0.57	U	0.063	U+	0.31	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	1.1	U
M6	MW655	MW655-DUP	10/17/2002	0.58	U	0.58	U	0.58	U	0.063	U	0.31	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U
M6	MW655	MW655	5/15/2003	0.39	U	0.39	U	0.39	U	0.46		0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW655	MW655	10/16/2003	0.49	U	0.49	U	0.49	U	0.52		0.26	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.98	U
M6	MW655	MW655	5/19/2004	0.44	U	0.44	U	0.44	U	0.048	U+	0.23	U+	0.88	U	0.99		0.88	U	0.88	U	0.88	U	0.9		0.88	U	0.44	U	0.44	U
M6	MW655	MW655	10/20/2004	0.79	U	0.79	U	0.79	U	0.25	U+	0.29	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.79	U	0.79	U	1.6	U
M6	MW655	MW655	7/18/2005	0.43	U	0.43	U	0.43	U	0.035	U+	0.078	U+	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.085	U+	0.86	U
M6	MW655	MW655	10/17/2005	0.49	U	0.49	U	0.49	U	0.04	U+	0.089	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.096	U+	0.98	U
M6	MW655	MW655	5/1/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW655	MW655	10/10/2006	0.47	U	0.47	U	0.47	U	0.038	U+	0.085	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.092	U+	0.94	U
M6	MW655	MW655	4/25/2007	0.05	U+	0.042	U+	0.046	U+	0.041	U+	0.091	U+	0.045	U+	0.11	U+	0.18	U+	0.095	U+	0.11	U+	0.16	U+	0.041	U+	0.099	U+	0.083	U+
M6	MW655	MW655	10/15/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M6	MW655	MW655	5/7/2008	0.39	U	0.39	U	0.39	U	0.42		0.78	U	0.78	U	2.6		0.78	U	0.78	U	1.5		0.78	U	0.39	U	0.39	U	0.78	U
M6	MW662	MW662	5/7/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	MW662	MW662	5/12/2003	0.44	U	0.44	U	0.44	U	0.048	U+	0.23	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.44	U	0.88	U
M6	MW662	MW662	5/20/2004	0.62	U	0.62	U	0.62	U	0.067	U+	0.33	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	1.2	U
M6	MW662	MW662	7/13/2005	0.42	U	0.42	U	0.42	U	0.035	U+	0.077	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.083	U+	0.85	U
M6	MW662	MW662	5/3/2006	0.49	U	0.49	U	0.49	U	0.04	U+	0.089	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.096	U+	0.98	U
M6	MW662	MW662	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M6	MW662	MW662	5/6/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW663	MW663	5/7/2002	0.66	U	0.66	U	0.66	U	0.66	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.66	U	0.66	U	0.66	U	1.3	U
M6	MW663	MW663	5/13/2003	0.44	U	0.44	U	0.44	U	0.048	U+	0.23	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.44	U	0.88	U
M6	MW663	MW663	5/20/2004	0.42	U	0.42	U	0.42	U	0.046	U+	0.22	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U
M6	MW663	MW663	7/13/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.41		0.78	U
M6	MW663	MW663-DUP	7/13/2005	0.46	U	0.46	U	0.46	U	0.037	U+	0.083	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U
M6	MW663	MW663	5/3/2006	0.6	U	0.6	U	0.6	U	0.05	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.12	U+	1.2	U
M6	MW663	MW663-DUP	5/3/2006	0.49	U	0.49	U	0.49	U	0.04	U+	0.089	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.096	U+	0.98	U
M6	MW663	MW663	4/24/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M6	MW663	MW663	5/6/2008	0.42	U	0.42	U	0.42	U	0.42	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U

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Joliet Army Ammunition Plant - Wilmington, IL**

		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW664	MW664	5/7/2002	0.49	U	0.49	U	0.49	U	0.49	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.49	U	0.98	U
M6	MW664	MW664	5/12/2003	0.55	U	0.55	U	0.55	U	0.06	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U
M6	MW664	MW664	5/24/2004	0.55	U	0.55	U	0.55	U	0.059	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U
M6	MW664	MW664	7/13/2005	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.44	U	0.88	U
M6	MW664	MW664	5/3/2006	0.42	U	0.42	U	0.42	U	0.035	U+	0.076	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.083	U+	0.83	U
M6	MW664	MW664	4/26/2007	0.042	U+	0.036	U+	0.039	U+	0.035	U+	0.077	U+	0.038	U+	0.089	U+	0.15	U+	0.08	U+	0.089	U+	0.13	U+	0.035	U+	0.083	U+	0.07	U+
M6	MW664	MW664	5/6/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	MW665	MW665	5/7/2002	0.49	U	0.49	U	0.49	U	0.49	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.49	U	0.99	U
M6	MW665	MW665	5/13/2003	0.62	U	0.62	U	0.62	U	0.067	U+	0.33	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	1.2	U
M6	MW665	MW665	5/20/2004	0.6	U	0.6	U	0.6	U	0.064	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.33	U	1.2	U
M6	MW665	MW665	7/13/2005	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.5		0.88	U
M6	MW665	MW665	5/3/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	MW665	MW665	4/26/2007	0.062	U+	0.053	U+	0.058	U+	0.051	U+	0.11	U+	0.056	U+	0.13	U+	0.22	U+	0.12	U+	0.13	U+	0.2	U+	0.051	U+	0.12	U+	0.1	U+
M6	MW665	MW665	5/6/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	SWTNT	SWTNT	7/16/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	SWTNT	SWTNT-DUP	7/16/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M6	SWTNT	SWTNT	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	SWTNT	SWTNT	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.96		0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M6	SWTNT	SWTNT	5/12/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M6	SWTNT	SWTNT	10/27/2000	0.6	U	0.6	U	0.6	U	0.24	U	0.48	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	0.6	U	1.2	U
M6	SWTNT	SWTNT	5/22/2001	0.51	U	0.51	U	0.51	U	0.51	U	1	U*	1	U	1	U	1	U	1.3		1	U	0.51	U	0.51	U	0.51	U	1	U
M6	SWTNT	SWTNT	10/31/2001	0.55	U	0.55	U	0.55	U	0.55	U*	1.1	U*	1.2		1.1	U	1.1	U	2.3		1.1	U	0.55	U	0.55	U	0.55	U	1.1	U
M6	SWTNT	SWTNT-DUP	10/31/2001	0.49	U	0.49	U	0.49	U	0.49	U*	0.99	U*	1		0.99	U	0.99	U	2		0.99	U	0.49	U	0.49	U	0.49	U	0.99	U
M6	SWTNT	SWTNT	5/3/2002	0.42	U	0.42	U	0.42	U	0.42	U	0.83	U	1.3		0.83	U	0.83	U	1.2		0.83	U	0.42	U	0.42	U	0.61		0.83	U
M6	SWTNT	SWTNT	10/17/2002	0.55	U	0.55	U	0.55	U	0.06	U+	0.29	U+	1.4		1.1	U	1.1	U	1.5		1.1	U	1.1	U	0.55	U	0.55	U	1.1	U
M6	SWTNT	SWTNT	5/8/2003	0.46	U	0.46	U	0.46	U	0.05	U+	0.24	U+	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.46	U	0.46	U	0.92	U
M6	SWTNT	SWTNT-DUP	5/8/2003	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	SWTNT	SWTNT	10/8/2003	0.48	U	0.48	U	0.48	U	0.052	U+	0.26	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.48	U	0.96	U
M6	SWTNT	SWTNT-DUP	10/8/2003	0.51	U	0.51	U	0.51	U	0.055	U+	0.27	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.51	U	1	U
M6	SWTNT	SWTNT	5/11/2004	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M6	SWTNT	SWTNT-DUP	5/11/2004	0.47	U	0.47	U	0.47	U	0.05	U+	0.25	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.94	U
M6	SWTNT	SWTNT	10/12/2004	0.96	U	0.96	U	0.96	U	0.3	U+	0.35	U+	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	0.96	U	0.96	U	1.9	U
M6	SWTNT	SWTNT-DUP	10/12/2004	0.76	U	0.76	U	0.76	U	0.24	U+	0.28	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.76	U	0.76	U	1.5	U
M6	SWTNT	SWTNT	7/21/2005	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.087	U+	0.88	U
M6	SWTNT	SWTNT	5/3/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	SWTNT	SWTNT	10/18/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M6	SWTNT	SWTNT	4/25/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M6	SWTNT	SWTNT	10/5/2007	0.032	U+	0.02	U+	0.035	U+	0.056	U+	0.079	U+	0.055	U+	0.1	U+	0.085	U+	0.078	U+	0.078	U+	0.035	U+	0.03	U+	0.049	U+	0.073	U+
M6	SWTNT	SWTNT	5/12/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

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Site		Well ID		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200		200		200	
Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200		200		200	
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS		NS		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M7	MW112	MW112	5/22/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW112	MW112	11/6/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW112	MW112	4/25/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW112	MW112	7/19/1988	1.51	U	126	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		NA		3.76	U	3.03	U
M7	MW112	MW112	8/9/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U	2.49	U
M7	MW112	MW112	7/8/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U	0.78	U
M7	MW112	MW112	10/25/1999	0.48	U	0.48	U*	0.48	U*	0.19	U	0.38	U	0.96	U	0.96	U*	NA		NA		NA		0.48	U	0.48	U*	0.48	U	0.96	U	0.96	U
M7	MW112	MW112	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U
M7	MW112	MW112	10/25/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U
M7	MW112	MW112	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U
M7	MW112	MW112	10/25/2001	0.58	U	0.58	U	0.58	U	0.58	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	0.58	U	1.2	U	1.2	U
M7	MW112	MW112	5/9/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U
M7	MW112	MW112	10/18/2002	0.42	U	0.42	U	0.42		0.046	U+	0.22	U+	0.85	U	0.85	U*	0.85	U*	0.85	U*	0.85	U	0.85	U*	0.85	U	0.42	U	0.42	U	0.85	U
M7	MW112	MW112	5/14/2003	0.52	U	0.52	U	0.52	U	0.056	U+	0.28	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U	1	U
M7	MW112	MW112	10/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U	0.78	U
M7	MW112	MW112	5/18/2004	0.49	U	0.49	U	0.49	U	0.053	U+	0.26	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U	0.99	U
M7	MW112	MW112	10/19/2004	0.4	U	0.4	U	0.4	U	0.13	U+	0.15	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.81	U	0.81	U
M7	MW112	MW112	7/18/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U	0.78	U
M7	MW112	MW112	10/21/2005	0.81	U	0.81	U	0.81	U	0.81	U	0.15	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.81	U	0.81	U	1.6	U	1.6	U
M7	MW112	MW112	5/4/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U	0.78	U
M7	MW112	MW112	10/11/2006	0.53	U	0.53	U	0.53	U	0.044	U+	0.097	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.11	U+	1.1	U	1.1	U
M7	MW112	MW112	4/30/2007	0.041	U+	0.035	U+	0.038	U+	0.034	U+	0.075	U+	0.037	U+	0.086	U+	0.14	U+	0.078	U+	0.086	U+	0.13	U+	0.034	U+	0.081	U+	0.068	U+	0.068	U+
M7	MW112	MW112	10/11/2007	0.044	U+	0.027	U+	0.047	U+	0.076	U+	0.11	U+	0.074	U+	0.13	U+	0.11	U+	0.11	U+	0.11	U+	0.047	U+	0.04	U+	0.066	U+	0.099	U+	0.099	U+
M7	MW112	MW112	5/8/2008	0.44	U	0.44	U	0.44	U	0.44	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.44	U	0.88	U	0.88	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200			
Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200			
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M7	MW113	MW113	5/22/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		1.8	U
M7	MW113	MW113	11/6/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW113	MW113	4/25/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW113	MW113	7/19/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M7	MW113	MW113	8/9/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M7	MW113	MW113	7/8/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M7	MW113	MW113	10/25/1999	0.42	U	0.42	U*	0.42	U*	0.17	U	0.33	U	0.83	U	0.83	U*	NA		NA		NA		0.42	U	0.42	U*	0.42	U	0.83	U
M7	MW113	MW113	5/16/2000	0.4	U	0.4	U	0.4	U	0.16	U	0.32	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.4	U	0.4	U	0.4	U	0.8	U
M7	MW113	MW113	10/25/2000	0.42	U	0.42	U	0.42	U	0.17	U	0.34	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.42	U	0.42	U	0.42	U	0.84	U
M7	MW113	MW113	5/23/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW113	MW113	10/25/2001	0.52	U	0.52	U	0.52	U	0.52	U*	1	U*	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	0.52	U	1	U
M7	MW113	MW113	5/9/2002	0.62	U	0.62	U	0.62	U	0.62	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	0.62	U	1.2	U
M7	MW113	MW113	10/18/2002	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U*	0.91	U*	0.91	U*	0.91	U*	0.91	U	0.46	U	0.46	U	0.91	U
M7	MW113	MW113	5/13/2003	0.42	U	0.42	U	0.42	U	0.046	U+	0.22	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U
M7	MW113	MW113	10/14/2003	0.44	U	0.44	U	0.44	U	0.048	U+	0.23	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.44	U	0.88	U
M7	MW113	MW113	5/18/2004	0.57	U	0.57	U	0.57	U	0.062	U+	0.3	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	1.1	U
M7	MW113	MW113	10/19/2004	0.76	U	0.76	U	0.76	U	0.24	U+	0.28	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.76	U	0.76	U	1.5	U
M7	MW113	MW113	7/18/2005	0.42	U	0.42	U	0.42	U	0.035	U+	0.077	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.083	U+	0.85	U
M7	MW113	MW113	10/21/2005	1.1	U	1.1	U	1.1	U	1.1	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	1.1	U	1.1	U	2.2	U
M7	MW113	MW113	5/4/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW113	MW113	10/11/2006	0.57	U	0.57	U	0.57	U*	0.047	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.11	U+	1.1	U
M7	MW113	MW113	4/30/2007	0.047	U+	0.04	U+	0.044	U+	0.039	U+	0.086	U+	0.043	U+	0.1	U+	0.17	U+	0.09	U+	0.1	U+	0.15	U+	0.039	U+	0.094	U+	0.079	U+
M7	MW113	MW113	10/12/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M7	MW113	MW113	5/8/2008	0.57	U	0.57	U	0.57	U	0.57	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	1.1	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M7	MW115	MW115	5/22/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		1.8	U
M7	MW115	MW115	11/6/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW115	MW115	4/23/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW115	MW115	7/22/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M7	MW115	MW115	7/8/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M7	MW115	MW115	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW115	MW115	10/17/2002	0.6	U	0.6	U	0.6	U	0.065	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	1.2	U
M7	MW115	MW115	5/13/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M7	MW115	MW115	10/15/2003	0.48	U	0.48	U	0.48	U	0.052	U+	0.26	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.48	U	0.96	U
M7	MW115	MW115	5/18/2004	0.56	U	0.56	U	0.56	U	0.06	U+	0.3	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.56	U	0.56	U	1.1	U
M7	MW115	MW115	10/19/2004	0.73	U	0.73	U	0.73	U	0.23	U+	0.27	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.73	U	0.73	U	1.5	U
M7	MW115	MW115	7/20/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW115	MW115	10/20/2005	0.61	U	0.61	U	0.61	U	0.05	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.61	U	0.12	U+	1.2	U
M7	MW115	MW115	5/3/2006	0.42	U	0.42	U	0.42	U	0.035	U+	0.076	U+	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.083	U+	0.83	U
M7	MW115	MW115	10/11/2006	0.77	U	0.77	U	0.77	U*	0.063	U+	0.14	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.77	U	0.15	U+	1.5	U
M7	MW115	MW115	4/19/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M7	MW115	MW115	10/15/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M7	MW115	MW115	5/9/2008	0.65	U	0.65	U	0.65	U	0.65	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	1.3	U
M7	MW124	MW124	5/27/1981	2.2	U	NA		NA		53.2		22		NA		3.2		NA		NA		NA		NA		NA		NA		1.8	U
M7	MW124	MW124	6/3/1981	NA		NA		0.59		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
M7	MW124	MW124	11/15/1985	1.4	U	2.3	U	1.9	U	26.2		13.7		NA		NA		NA		NA		NA		NA		NA		46		13.7	
M7	MW124	MW124	11/21/1985	NA		NA		NA		20		10	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
M7	MW124	MW124	4/22/1986	1.4	U	2.3	U	1.9	U	12.2		9.89		NA		NA		NA		NA		NA		NA		NA		7	U	10	
M7	MW124	MW124	7/22/1988	1.51	U	126	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M7	MW124	MW124	8/28/1991	0.449	U	0.611	U	0.635	U	2.04		1.11		NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	21.3		2.49	U



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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M7	MW124R	MW124R	12/9/1998	1.2	U	1.2	U	3.8		2.6		1.2	U	1.6		2.6	U	NA		NA		NA		1.2		1.2	U	0.7		2.6	U
M7	MW124R	MW124R	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M7	MW124R	MW124R-DUP	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M7	MW124R	MW124R	10/26/1999	3.9	U	3.9	U	9.6		1.6	U	3.1	U	13		7.8	U	NA		NA		NA		3.9	U	6.4		4.6		7.8	U
M7	MW124R	MW124R-DUP	10/26/1999	3.9	U	3.9	U	9.9		1.6	U	3.1	U	13		7.8	U	NA		NA		NA		3.9	U	5.9		4.6		7.8	U
M7	MW124R	MW124R	5/16/2000	0.61	U	0.61	U	0.61	U	0.24	U	0.49	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.67	U	0.61	U	0.67	U	1.2	U
M7	MW124R	MW124R-DUP	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	1.1		0.78	U	0.78	U	1		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW124R	MW124R	10/25/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW124R	MW124R-DUP	10/25/2000	0.58	U	0.58	U	0.58	U	0.23	U	0.47	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	0.58	U	1.2	U
M7	MW124R	MW124R	5/24/2001	0.39	U	0.39	U	0.66		0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW124R	MW124R-DUP	5/24/2001	0.39	U	0.39	U	1.1		0.39	U	0.78	U*	0.88		0.78	U	0.78	U	1.3		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW124R	MW124R	5/9/2002	0.39	U	0.39	U	69		1.1		0.78	U	15		2.1		0.78	U	22		1.7		1.2		0.39	U	3.5		0.78	U
M7	MW124R	MW124R	10/17/2002	0.44	U	0.58		46		4.2		1.4		41		0.88	U*	0.88	U*	49		0.88	U*	3.6		0.44	U	10		0.88	U
M7	MW124R	MW124R	5/13/2003	2.3	U	2.3	U	10		2.5	U+	1	U+	19		4.6	U	4.6	U	28		4.6	U	4.6	U	2.3	U	23	U	4.6	U
M7	MW124R	MW124R-DUP	5/13/2003	2	U	2	U	12		0.21	U	1	U	18		3.9	U	3.9	U	27		3.9	U	3.9	U	2	U	2	U	3.9	U
M7	MW124R	MW124R	10/15/2003	6.3		0.39	U	120		29		0.21	U+	55		0.78	U	0.78	U	66		7.8	U	1.3		0.39	U	6.5		0.78	U
M7	MW124R	MW124R-DUP	10/15/2003	6.8		0.55	U	160		33		1.7		56		1.1	U	1.1	U	66		11	U	11	U	0.55	U	6.4		1.1	U
M7	MW124R	MW124R	5/18/2004	7.7		5.1	U	140		0.55	U+	2.8	U+	28		10	U	10	U	32		10	U	10	U	5.1	U	5.1	U	10	U
M7	MW124R	MW124R-DUP	5/18/2004	5.7		5.2	U	110		0.56	U	2.8	U	24		10	U	10	U	28		10	U	10	U	5.2	U	5.2	U	10	U
M7	MW124R	MW124R	10/20/2004	4.8	U	4.8	U	74		1.5	U+	2.3	U+	35		9.6	U	9.6	U	37		9.6	U	9.6	U	4.8	U	4.8	U	9.6	U
M7	MW124R	MW124R-DUP	10/20/2004	6.4	U	6.4	U	99		2	U	2.3	U	45		13	U	13	U	47		13	U	13	U	6.4	U	8		13	U
M7	MW124R	MW124R	7/18/2005	0.69	U+	6.9	U	86		0.57	U+	1.3	U+	43		14	U	14	U	46		14	U	14	U	6.9	U	1.4	U+	14	U
M7	MW124R	MW124R-DUP	7/18/2005	0.58	U+	5.8	U	84		0.47	U+	1.1	U+	43		12	U	12	U	45		12	U	12	U	5.8	U	1.1	U+	12	U
M7	MW124R	MW124R	10/21/2005	2.1	U/UJ	2.1	U/UJ	41		6.3	J	0.38	U/UJ+	48		4.2	U	4.2	U	48		4.2	U	4.2	U/UJ	2.1	U/UJ	4.1	J	4.2	U
M7	MW124R	MW124R-DUP	10/21/2005	1.9	U/UJ	1.9	U/UJ	42		6.9	J	3.8	U/UJ	52		3.8	U	3.8	U	52		3.8	U	3.8	U/UJ	1.9	U/UJ	4.2	J	3.8	U
M7	MW124R	MW124R	5/4/2006	3.9	U	3.9	U	32		0.32	U	0.71	U+	13		7.8	U	7.8	U	16		7.8	U	7.8	U	3.9	U	4.6		7.8	U
M7	MW124R	MW124R-DUP	5/4/2006	3.9	U	3.9	U	32		0.32	U+	0.71	U+	13		7.8	U	7.8	U	16		7.8	U	7.8	U	3.9	U	4.7		7.8	U
M7	MW124R	MW124R	10/11/2006	7.3	U/RI	7.3	U	69	*/JI	0.6	U+	1.3	U+	42		15	U	15	U	39		15	U	15	U/RI	7.3	U/RI	1.4	U/RI+	15	U
M7	MW124R	MW124R-DUP	10/11/2006	7	U/RI	7	U	79	*/JI	0.57	U+	1.3	U+	41		14	U	14	U	41		14	U	14	U/RI	7	U/RI	7.5	/JI	14	U
M7	MW124R	MW124R	4/30/2007	1.6	/JI	0.045	U+	58		1.8		1.6		17		0.11	U+	0.19	U+	17		7.9	/JI	0.17	U+	0.044	U+	5.2	/JI	0.089	U+
M7	MW124R	MW124R	10/11/2007	0.036	U+	0.022	U+	5.5	/JI	1.4		0.087	U+	22		0.11	U+	0.093	U+	20	/JI	0.086	U+	0.038	U+	0.033	U+	2.5	/JI	0.08	U+
M7	MW124R	MW124R-DUP	10/11/2007	0.03	U+	0.019	U+	7.1	/JI	1.7		0.073	U+	23		0.091	U+	0.078	U+	18	/JI	0.072	U+	0.99	/JI	0.028	U+	2.3	/JI	0.067	U+
M7	MW124R	MW124R	5/8/2008	0.49	U	0.49	U	13		1		0.99	U	13		0.99	U	0.99	U	13		0.99	U	0.99	U	0.49	U	1.7		0.99	U
M7	MW124R	MW124R-DUP	5/8/2008	0.49	U	0.49	U	13		1.1		0.99	U	14		0.99	U	0.99	U	13		0.99	U	0.99	U	0.49	U	1.7		0.99	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
Unit		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
Minimum RG		5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																		
Risk Based RG		5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																		
Surface Water RG		15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																		
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M7	MW157	MW157	12/3/1982	2.8	U	NA		0.37		0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA			
M7	MW157	MW157	11/15/1985	1.4	U	5.06	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M7	MW157	MW157	4/16/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M7	MW157	MW157	7/22/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M7	MW157	MW157	8/6/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M7	MW157	MW157	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW157	MW157	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW157	MW157	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW157	MW157	10/25/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW157	MW157	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW157	MW157	10/31/2001	0.78	U	0.78	U	0.78	U	0.78	U*	1.6	U*	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.78	U	0.78	U	0.78	U	1.6	U		
M7	MW157	MW157	5/13/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW157	MW157	5/14/2003	0.49	U	0.49	U	0.49	U	0.052	U+	0.26	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.98	U
M7	MW157	MW157	10/16/2003	0.45	U	0.45	U	0.45	U	0.048	U+	0.24	U+	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.45	U	0.9	U
M7	MW157	MW157	5/18/2004	0.72	U	0.72	U	0.72	U	0.077	U+	0.38	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.72	U	0.72	U	1.4	U
M7	MW157	MW157	10/19/2004	0.72	U	0.72	U	0.72	U	0.22	U+	0.26	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.72	U	0.72	U	1.4	U
M7	MW157	MW157	7/20/2005	0.41	U	0.41	U	0.41	U	0.034	U+	0.075	U+	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.081	U+	0.82	U
M7	MW157	MW157	10/20/2005	0.53	U	0.53	U	0.53	U	0.043	U+	0.096	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.1	U+	1.1	U
M7	MW157	MW157	5/3/2006	0.41	U	0.41	U	0.41	U	0.034	U+	0.075	U+	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.081	U+	0.82	U
M7	MW157	MW157	10/11/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW157	MW157	4/19/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+		
M7	MW157	MW157	10/15/2007	0.027	U+	0.017	U+	0.029	U+	0.048	U+	0.067	U+	0.047	U+	0.084	U+	0.072	U+	0.066	U+	0.066	U+	0.029	U+	0.025	U+	0.042	U+	0.062	U+		
M7	MW157	MW157	5/9/2008	0.46	U	0.46	U	0.46	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U

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		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M7	MW158	MW158	3/9/1983	2.8	U	NA		0.31	U	0.28	U	3	U	NA		2.4	U	NA		NA		NA		NA		NA		NA		NA	
M7	MW158	MW158	11/15/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW158	MW158	4/16/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW158	MW158	7/15/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M7	MW158	MW158	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M7	MW158	MW158	10/25/1999	0.39	U	0.39	U*	0.39	U*	0.16	U	0.31	U	0.78	U	0.78	U*	NA		NA		NA		0.39	U	0.39	U*	0.39	U	0.78	U
M7	MW158	MW158	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW158	MW158	10/25/2000	0.42	U	0.42	U	0.42	U	0.43		0.34	U	0.84	U	1.9		0.84	U	0.84	U	1.8		0.42	U	0.42	U	0.42	U	0.84	U
M7	MW158	MW158	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW158	MW158	10/31/2001	0.65	U	0.65	U	0.65	U	0.65	U*	1.3	U*	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	0.65	U	1.3	U
M7	MW158	MW158	5/13/2002	0.46	U	0.46	U	0.46	U	0.46	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.43	U	0.46	U	0.91	U
M7	MW158	MW158	10/25/2002	0.6	U	0.6	U	0.6	U	0.064	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	1.2	U
M7	MW158	MW158	5/14/2003	0.47	U	0.47	U	0.47	U	0.05	U+	0.25	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.94	U
M7	MW158	MW158	10/16/2003	0.42	U	0.42	U	0.42	U	0.046	U+	0.22	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U
M7	MW158	MW158	5/18/2004	0.52	U	0.52	U	0.52	U	0.056	U+	0.28	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.52	U	0.52	U	1	U
M7	MW158	MW158	10/19/2004	0.64	U	0.04	U	0.64	U	0.2	U+	0.24	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.64	U	1.3	U
M7	MW158	MW158	7/20/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW158	MW158	10/20/2005	0.64	U	0.64	U	0.64	U	0.052	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.13	U+	1.3	U
M7	MW158	MW158	5/3/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW158	MW158	10/11/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW158	MW158	4/19/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M7	MW158	MW158-DUP	4/19/2007	0.044	U+	0.037	U+	0.04	U+	0.036	U+	0.079	U+	0.039	U+	0.092	U+	0.15	U+	0.083	U+	0.092	U+	0.14	U+	0.036	U+	0.086	U+	0.073	U+
M7	MW158	MW158	10/15/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M7	MW158	MW158	5/9/2008	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M7	MW159	MW159	11/19/1985	1.4	U	2.64		1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW159	MW159	4/24/1986	1.4	U	2.3		1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U
M7	MW159	MW159	7/28/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U
M7	MW159	MW159	10/29/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M7	MW159	MW159	5/13/2002	0.43	U	0.43	U	0.43	U	0.43	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.43	U	0.43	U	0.86	U
M7	MW159	MW159	10/20/2003	0.41	U	0.41	U	0.41	U	0.044	U+	0.22	U+	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.41	U	0.82	U
M7	MW159	MW159	5/20/2004	0.49	U	0.49	U	1.1		0.052	U+	0.26	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.49	U	0.98	U
M7	MW159	MW159	10/21/2004	0.46	U	0.46	U	0.46	U	0.14	U+	0.17	U+	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.46	U	0.46	U	0.92	U
M7	MW159	MW159	5/3/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U

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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M7	MW216	MW216	7/28/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		NA		3.76	U	3.03	U
M7	MW216	MW216	10/5/1988	NA		NA		NA		10	U	10	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
M7	MW216	MW216	10/17/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.64	U	1.17	U	2.49	U		
M7	MW216	MW216	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M7	MW216	MW216	6/30/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW216	MW216	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW216	MW216	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.75	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW216	MW216	10/25/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW216	MW216	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW216	MW216	10/25/2001	0.62	U	0.62	U	0.62	U	0.62	U*	1.2	U*	12	U	3.5		1.2	U	1.2	U	1.2	U	2.6		0.62	U	0.62	U	0.62	U	1.2	U
M7	MW216	MW216	5/9/2002	0.51	U	0.51	U	0.51	U	0.51	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.51	U	0.51	U	1	U
M7	MW216	MW216	10/18/2002	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U*	0.78	U*	0.78	U	0.78	U*	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW216	MW216	5/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M7	MW216	MW216	10/15/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M7	MW216	MW216	5/19/2004	0.86	U	0.86	U	0.86	U	0.092	U+	0.46	U+	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	0.86	U	0.86	U	1.7	U
M7	MW216	MW216	10/19/2004	0.55	U	0.55	U	0.55	U	0.17	U+	0.2	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U
M7	MW216	MW216	7/18/2005	0.54	U	0.54	U	0.54	U	0.044	U+	0.098	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.11	U+	1.1	U
M7	MW216	MW216	10/21/2005	0.68	U	0.68	U	0.68	U	0.056	U+	0.13	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.13	U+	1.4	U
M7	MW216	MW216	5/4/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW216	MW216	10/11/2006	0.64	U	0.64	U	0.64	U*	0.053	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.13	U+	1.3	U
M7	MW216	MW216	4/26/2007	0.064	U+	0.054	U+	0.059	U+	0.053	U+	0.12	U+	0.058	U+	0.14	U+	0.23	U+	0.12	U+	0.14	U+	0.2	U+	0.053	U+	0.13	U+	0.11	U+		
M7	MW216	MW216	10/11/2007	0.032	U+	0.02	U+	0.034	U+	0.056	U+	0.078	U+	0.054	U+	0.098	U+	0.084	U+	0.077	U+	0.077	U+	0.034	U+	0.03	U+	0.049	U+	0.072	U+		
M7	MW216	MW216	5/8/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M7	MW217	MW217	7/18/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.16	U	3.03	U		
M7	MW217	MW217	10/4/1988	NA		NA		NA		10	U	10	U	NA		NA		NA		NA		NA		NA		NA		NA		NA			
M7	MW217	MW217	8/27/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M7	MW217	MW217	7/9/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M7	MW217	MW217	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW217	MW217	10/26/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW217	MW217	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW217	MW217	10/25/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW217	MW217	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M7	MW217	MW217	10/25/2001	0.75	U	0.75	U	0.75	U	0.75	U*	1.5	U*	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.75	U	0.75	U	0.75	U	1.5	U		
M7	MW217	MW217	5/13/2002	0.43	U	0.43	U	0.43	U	0.43	U	0.86	U	0.86	U	0.86	U*	0.86	U*	0.86	U	0.86	U*	0.43	U	0.43	U	0.43	U	0.86	U		
M7	MW217	MW217	10/18/2002	0.46	U	0.46	U	0.46	U	0.049	U+	0.24	U+	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.91	U		
M7	MW217	MW217	5/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M7	MW217	MW217	10/15/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M7	MW217	MW217	5/19/2004	0.65	U	0.65	U	0.65	U	0.07	U+	0.35	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	1.3	U		
M7	MW217	MW217	10/19/2004	0.58	U	0.58	U	0.58	U	0.18	U+	0.21	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U		
M7	MW217	MW217	7/18/2005	0.55	U	0.55	U	0.55	U	0.045	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.11	U+	1.1	U		
M7	MW217	MW217	10/21/2005	0.64	U	0.64	U	0.64	U	0.052	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.13	U+	1.3	U		
M7	MW217	MW217	5/4/2006	0.55	U	0.55	U	0.55	U	0.045	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.11	U+	1.1	U		
M7	MW217	MW217	10/11/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M7	MW217	MW217	4/26/2007	0.047	U+	0.04	U+	0.043	U+	0.038	U+	0.085	U+	0.042	U+	0.098	U+	0.16	U+	0.089	U+	0.098	U+	0.15	U+	0.038	U+	0.092	U+	0.078	U+		
M7	MW217	MW217	10/11/2007	0.048	U+	0.03	U+	0.051	U+	0.083	U+	0.12	U+	0.081	U+	0.15	U+	0.13	U+	0.11	U+	0.11	U+	0.051	U+	0.044	U+	0.072	U+	0.11	U+		
M7	MW217	MW217	5/8/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																	
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																	
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M7	MW660	MW660	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M7	MW660	MW660	10/25/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M7	MW660	MW660	5/16/2000	0.39	U	0.39	U*	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW660	MW660	10/27/2000	0.41	U	0.41	U	0.41	U	0.16	U	0.33	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.41	U	0.41	U	0.82	U
M7	MW660	MW660	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW660	MW660	10/25/2001	0.72	U	0.72	U	0.72	U	0.72	U*	1.4	U*	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.72	U	0.72	U	0.72	U	1.4	U
M7	MW660	MW660	5/9/2002	0.44	U	0.44	U	0.44	U	0.44	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.44	U	0.44	U	0.88	U
M7	MW660	MW660	10/18/2002	0.39	U	0.39	U	0.39	U	0.42	U+	0.21	U+	0.78	U	0.78	U*	0.78	U*	0.78	U	0.78	U*	0.78	U	0.39	U	0.39	U	0.78	U
M7	MW660	MW660	5/14/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M7	MW660	MW660	10/16/2003	0.47	U	0.47	U	0.47	U	0.88		0.25	U+	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.47	U	0.47	U	0.94	U
M7	MW660	MW660	5/19/2004	0.62	U	0.62	U	0.62	U	0.067	U+	0.33	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	1.2	U
M7	MW660	MW660	10/19/2004	0.39	U	0.39	U	0.39	U	0.43		0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.86		0.78	U	0.39	U	0.39	U	0.78	U
M7	MW660	MW660	7/19/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW660	MW660	10/20/2005	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.087	U+	0.88	U
M7	MW660	MW660	5/4/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW660	MW660	10/11/2006	0.42	U	0.42	U	0.42	U*	0.035	U+	0.077	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.083	U+	0.85	U
M7	MW660	MW660	4/23/2007	0.041	U+	0.035	U+	0.038	U+	0.034	U+	0.075	U+	0.037	U+	0.086	U+	0.14	U+	0.078	U+	0.086	U+	0.13	U+	0.034	U+	0.081	U+	0.068	U+
M7	MW660	MW660	10/15/2007	0.033	U+	0.021	U+	0.036	U+	0.058	U+	0.081	U+	0.057	U+	0.1	U+	0.088	U+	0.08	U+	0.08	U+	0.036	U+	0.031	U+	0.051	U+	0.075	U+
M7	MW660	MW660	5/9/2008	0.65	U	0.65	U	0.65	U	0.65	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.65	U	1.3	U
M7	MW661	MW661	7/7/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M7	MW661	MW661	10/25/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M7	MW661	MW661	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW661	MW661	10/27/2000	0.44	U	0.44	U	0.44	U	0.17	U	0.35	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.44	U	0.44	U	0.44	U	0.87	U
M7	MW661	MW661	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M7	MW661	MW661	10/25/2001	0.62	U	0.62	U	0.62	U	0.62	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	0.62	U	1.2	U
M7	MW661	MW661	5/9/2002	0.46	U	0.46	U	0.46	U	0.46	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.46	U	0.91	U
M7	MW661	MW661	10/18/2002	0.41	U	0.41	U	0.41	U	0.044	U+	0.22	U+	0.82	U	0.82	U*	0.82	U*	0.82	U	0.82	U*	0.82	U	0.41	U	0.41	U	0.82	U
M7	MW661	MW661	5/14/2003	0.6	U	0.6	U	0.6	U	0.065	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	1.2	U
M7	MW661	MW661	10/15/2003	0.46	U	0.46	U	0.46	U	0.48		0.24	U+	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.78	U	0.46	U	0.46	U	0.92	U
M7	MW661	MW661	5/19/2004	0.61	U	0.61	U	0.61	U	0.066	U+	0.32	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.61	U	0.61	U	1.2	U
M7	MW661	MW661	10/20/2004	0.75	U	0.75	U	0.75	U	0.23	U+	0.27	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.75	U	0.75	U	1.5	U
M7	MW661	MW661	7/19/2005	0.44	U	0.44	U	0.44	U	0.036	U+	0.08	U+	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.44	U	0.087	U+	0.88	U
M7	MW661	MW661	10/20/2005	0.69	U	0.69	U	0.69	U	0.057	U+	0.13	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.69	U	0.14	U+	1.4	U
M7	MW661	MW661	5/3/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M7	MW661	MW661	10/11/2006	0.58	U	0.58	U	0.58	U*	0.048	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.12	U+	1.2	U
M7	MW661	MW661	4/23/2007	0.041	U+	0.035	U+	0.038	U+	0.034	U+	0.075	U+	0.037	U+	0.086	U+	0.14	U+	0.078	U+	0.086	U+	0.13	U+	0.034	U+	0.081	U+	0.068	U+
M7	MW661	MW661	10/15/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M7	MW661	MW661	5/9/2008	0.51	U	0.51	U	0.51	U	0.51	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.51	U	1	U



**Summary of Historical Explosives Groundwater Analytical Results  
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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M8	MW121	MW121	6/2/1981	2.2	U	NA		0.29	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		NA		NA	
M8	MW121	MW121	11/4/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M8	MW121	MW121	4/16/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M8	MW121	MW121	7/26/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M8	MW121	MW121	9/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
M8	MW121	MW121	7/1/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M8	MW147	MW147	7/10/1981	2.2	U	NA		0.55		0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		NA		NA	
M8	MW147	MW147	11/14/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M8	MW147	MW147	4/22/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M8	MW147	MW147	7/6/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M8	MW147	MW147	9/23/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
M8	MW147	MW147	7/1/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M8	MW147	MW147	10/27/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U*
M8	MW147R	MW147R	10/23/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M8	MW147R	MW147R	5/1/2002	0.6	U	0.6	U	0.6	U	0.6	U	1.2	U*	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.6	U	0.6	U	1.2	U
M8	MW147R	MW147R	10/25/2002	0.78	U	0.78	U	0.78	U	0.084	U+	0.41	U+	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.78	U	0.78	U	1.6	U
M8	MW147R	MW147R	10/21/2003	0.4	U	0.4	U	0.4	U	0.043	U+	0.21	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.81	U
M8	MW147R	MW147R	10/20/2004	0.59	U	0.59	U	0.59	U	0.19	U+	0.22	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	1.2	U
M8	MW147R	MW147R	10/19/2005	0.49	U	0.49	U	0.49	U	0.041	U+	0.09	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.098	U+	0.99	U
M8	MW147R	MW147R	10/12/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M8	MW147R	MW147R	10/16/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+	0.061	U+
M8	MW147R	MW147R	5/19/2008	0.59	U	0.59	U	0.59	U	0.59	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	1.2	U
M8	MW148	MW148	7/10/1981	2.2	U	NA		0.3		0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		NA		NA	
M8	MW148	MW148	11/14/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M8	MW148	MW148	4/22/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M8	MW148	MW148	7/22/1988	1.51	U	1.26	U	2.61		3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M8	MW148	MW148	9/23/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
M8	MW148	MW148	6/30/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.39	U	0.78	U
M8	MW148	MW148-DUP	6/30/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.39	U	0.78	U
M8	MW148	MW148	10/27/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*
M8	MW148	MW148-DUP	10/27/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*
M8	MW148	MW148	5/18/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U
M8	MW148	MW148	10/23/2000	0.42	U	0.42	U	0.42	U	0.17	U	0.34	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.42	U	0.42	U	0.42	U	0.84	U
M8	MW148	MW148	5/18/2001	0.58	U	0.58	U	0.58	U	0.58	U*	1.2	U*	1.2	U	2.5		1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	0.58	U	0.58	U	1.2	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M8	MW148RR	MW148RR	10/23/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M8	MW148RR	MW148RR-DU	10/23/2001	0.57	U	0.57	U	0.57	U	0.57	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.57	U	0.57	U	0.57	U	1.1	U
M8	MW148RR	MW148RR	5/7/2002	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M8	MW148RR	MW148RR	10/25/2002	0.75	U	0.75	U	0.75	U	0.081	U+	0.4	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.75	U	0.75	U	1.5	U
M8	MW148RR	MW148RR	5/16/2003	0.63	U	0.63	U	0.63	U	0.068	U+	0.31	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.63	U	0.63	U	1.3	U
M8	MW148RR	MW148RR-DU	5/16/2003	0.58	U	0.58	U	0.58	U	0.063	U	0.31	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U
M8	MW148RR	MW148RR	10/21/2003	0.48	U	0.48	U	0.48	U	0.042	U+	0.26	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.48	U	0.96	U
M8	MW148RR	MW148RR-DU	10/21/2003	0.39	U	0.39	U	0.39	U	0.042	U	0.21	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M8	MW148RR	MW148RR	5/20/2004	0.66	U	0.66	U	0.66	U	0.071	U+	0.28	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.66	U	0.66	U	1.3	U
M8	MW148RR	MW148RR-DU	5/20/2004	0.53	U	0.53	U	0.53	U	0.057	U	0.28	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U
M8	MW148RR	MW148RR	10/20/2004	0.89	U	0.89	U	0.89	U	0.22	U+	0.33	U+	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	0.89	U	0.89	U	1.8	U
M8	MW148RR	MW148RR-DU	10/20/2004	0.7	U	0.7	U	0.7	U	0.22	U	0.26	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.7	U	1.4	U
M8	MW148RR	MW148RR	7/21/2005	0.49	U	0.49	U	0.49	U	0.04	U+	0.089	U+	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.49	U	0.096	U+	0.98	U
M8	MW148RR	MW148RR-DU	7/21/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M8	MW148RR	MW148RR	10/19/2005	0.54	U	0.54	U	0.54	U	0.044	U+	0.098	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.11	U+	1.1	U
M8	MW148RR	MW148RR-DU	10/19/2005	0.43	U	0.43	U	0.43	U	0.035	U+	0.078	U+	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.43	U	0.085	U+	0.86	U
M8	MW148RR	MW148RR	5/4/2006	0.65	U	0.65	U	0.65	U	0.053	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.65	U	0.13	U+	1.3	U
M8	MW148RR	MW148RR-DU	5/4/2006	0.45	U	0.45	U	0.45	U	0.037	U+	0.082	U+	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.089	U+	0.9	U
M8	MW148RR	MW148RR	10/12/2006	0.62	U	0.62	U	0.62	U	0.051	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.12	U+	1.2	U
M8	MW148RR	MW148RR-DU	10/12/2006	0.69	U	0.69	U	0.69	U	0.057	U+	0.13	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.69	U	0.14	U+	1.4	U
M8	MW148RR	MW148RR	5/1/2007	0.039	U+	0.033	U+	0.036	U+	0.032	U+	0.071	U+	0.035	U+	0.082	U+	0.14	U+	0.074	U+	0.082	U+	0.12	U+	0.032	U+	0.077	U+	0.065	U+
M8	MW148RR	MW148RR	10/16/2007	0.046	U+	0.029	U+	0.049	U+	0.08	U+	0.11	U+	0.078	U+	0.14	U+	0.12	U+	0.11	U+	0.11	U+	0.049	U+	0.043	U+	0.07	U+	0.1	U+
M8	MW148RR	MW148RR-DU	10/16/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M8	MW148RR	MW148RR	5/19/2008	0.49	U	0.49	U	0.49	U	0.49	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U
M8	MW323	MW323	10/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M8	MW323	MW323	6/30/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M8	MW323	MW323-DUP	6/30/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M8	MW323	MW323	6/30/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M8	MW324	MW324	10/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M8	MW324	MW324	7/1/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M8	MW325	MW325	10/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.31	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M8	MW325	MW325	6/30/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	2.7		0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M8	MW325	MW325	10/27/1999	0.5	U	0.5	U	0.5	U	0.2	U	0.4	U	1		1	U	NA		NA		NA		0.5	U	0.5	U	0.5	U	1	U
M8	MW325	MW325	10/23/2000	0.42	U	0.42	U	0.42	U*	0.17	U	0.34	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.42	U	0.42	U	0.42	U	0.84	U

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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200			
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200			
Surface Water RG				15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF				
M8	MW325R	MW325R	11/1/2001	0.41	U	0.41	U	0.41	U	0.41	U	0.82	U*	1.8		0.82	U	0.82	U	2.6		0.82	U	0.41	U	0.41	U	0.41	U	0.82	U				
M8	MW325R	MW325R	10/23/2002	0.58	U	0.58	U	0.58	U	0.062	U+	0.31	U++	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U						
M8	MW325R	MW325R	10/13/2003	0.39	U	0.39	U	0.39	U	0.042	U+	0.21	U+	3.3		0.78	U	0.78	U	3.8		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M8	MW325R	MW325R	10/21/2004	0.4	U	0.4	U	0.4	U	1.1		2.1	J	4.9	J	0.81	U	0.81	U	5.2		0.81	U	0.81	U	0.4	U	0.4	U	0.81	U				
M8	MW325R	MW325R	10/19/2005	0.42	U	0.42	U	0.42	U	0.034	U+	0.94		2.3		0.83	U	0.83	U	3		0.83	U	0.83	U	0.42	U	0.082	U+	0.83	U				
M8	MW325R	MW325R	10/12/2006	0.39	U	0.39	U	0.39	U	0.41		1.4		3		0.78	U	0.78	U	4.2		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U				
M8	MW325R	MW325R	10/16/2007	0.03	U+	0.019	U+	0.032	U+	0.052	U+	1.1		2.2		0.093	U+	0.079	U+	3.1		0.073	U+	0.032	U+	0.028	U+	0.046	U+	0.068	U+				
M8	MW325R	MW325R	5/19/2008	0.57	U	0.57	U	0.57	U	0.57	U	1.1	U	1.5		1.1	U	1.1	U	2.2		1.1	U	1.1	U	0.57	U	0.57	U	1.1	U				
M8	MW327	MW327	9/24/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U				
M8	MW327R	MW327R	12/9/1998	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	2.6	U	NA		NA		NA		2.6	U	1.2	U	2.6	U	2.6	U				
M8	MW330	MW330	10/23/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U				
M8	MW330	MW330	7/1/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U				
M8	MW332	MW332	7/1/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U				
M8	MW360	MW360	12/1/1992	NA		NA		NA		4.5	U	0.79	U	NA		NA		NA		NA		NA		NA		NA		NA		NA					
M8	MW361	MW361	12/1/1992	NA		NA		NA		4.5	U	0.79	U	NA		NA		NA		NA		NA		NA		NA		NA		NA					
M8	MW361R	MW361R	12/8/1998	1.2	U	1.2	U	1.1	U	1.2	U	1.2	U	1.2	U	2.6	U	NA		NA		NA		2.6	U	1.2	U	2.6	U	2.6	U				
M8	SW10	SW10	7/28/1988	1.51		1.26		2.16		3.6		2.64		NA		2.79		NA		NA		NA		NA		NA		3.76		3.03					

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M13	MW321	MW321	10/11/1991	0.449	U	0.611	U	4.82		120		26		NA		5.67		NA		NA		NA		1.21	U	12.4		1.17	U	2.49	U
M13	MW321	MW321	7/8/1998	0.19	U	0.16	U	5		63.1		0.22	U	39		0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M13	MW321	MW321	7/9/1999	0.39	U	0.39	U	3		0.31	U	0.31	U	12		2		NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321-DUP	7/9/1999	0.39	U	0.39	U	3.4		0.31	U	0.31	U	13		2.2		NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321	10/25/1999	12		0.39	U	0.39	U	67		30		16		3.2		NA		NA		NA		0.39	U	0.39	U	0.39	U*	0.78	U
M13	MW321	MW321-DUP	10/25/1999	13		0.39	U	1.3		63		34		20		3.3		NA		NA		NA		0.39	U	0.39	U	0.39	U*	0.78	U
M13	MW321	MW321	5/16/2000	0.39	U	0.39	U	0.39		33	D	21	D	9.3		2.3		0.78	U	6.2		0.66		0.39	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321-DUP	5/16/2000	0.39	U	0.39	U	0.39	U	30	D	19	D	7.8		2.2		0.78	U	5.4		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321	10/23/2000	5.5	U	5.5	U	5.5	U	63		28		19		11	U	11	U	11	U	11	U	5.5	U	5.5	U	5.5	U	11	U
M13	MW321	MW321-DUP	10/23/2000	4.5	U	4.5	U	1.3		58		25		17		9.1	U	9.1	U	9.4		9.1	U	4.5	U	4.5	U	4.5	U	9.1	U
M13	MW321	MW321	5/24/2001	0.39	U	0.39	U	0.39	U	33		21		8.7		2.1		0.78	U	4.9		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321-DUP	5/24/2001	0.39	U	0.39	U	0.39	U	33		21		8.7		2		0.78	U	4.8		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321	10/23/2001	0.49	U	0.49	U	1.2		74		30		16		5		0.98	U	9.7		1.6		0.49	U	0.49	U	0.49	U	0.98	U
M13	MW321	MW321-DUP	10/23/2001	0.58	U	0.58	U	1.3		68		28		16		4.9		1.2	U	10		1.5		0.58	U	0.58	U	0.58	U	1.2	U
M13	MW321	MW321	5/9/2002	0.73	U	0.73	U	0.73	U	16		15		1.5	U	1.5	U	1.5	U	5.1		1.5	U	0.73	U	0.73	U	0.73	U	1.5	U
M13	MW321	MW321	10/18/2002	0.42	U	0.42	U	0.83		66		28		16		4.4	J	1.1	J	8.9		1.4	J	0.83	U	0.42	U	0.42	U	0.83	U
M13	MW321	MW321-DUP	10/18/2002	0.39	U	0.39	U	0.92		68		29		17		4.6	J	1.2	J	9.6		1.5	J	0.78	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321	5/15/2003	0.6	U	0.6	U	0.6	U	14		13		7.9		1.2		1.2	U	4.6		1.2	U	1.2	U	0.6	U	0.6	U	1.2	U
M13	MW321	MW321-DUP	5/15/2003	0.39	U	0.39	U	0.39	U	15		13		8.2		1.3		0.78	U	4.7		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321	10/16/2003	0.39	U	0.39	U	0.81		49		21		12		0.78	U	0.78	U	7.6		2		0.78	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321-DUP	10/16/2003	0.39	U	0.39	U	1		47		22		12		0.78	U	0.78	U	8.5		2.5		0.78	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321	5/24/2004	0.55	U	0.55	U	0.78		2		3.2		4.5		1.1	U	1.1	U	4.2		1.1	U	1.1	U	0.55	U	0.55	U	1.1	U
M13	MW321	MW321	10/21/2004	0.42	U	0.42	U	7.4		10		6.1		7.6	J	0.85	U	0.85	U	14		0.85	U	0.85	U	0.42	U	0.42	U	0.85	U
M13	MW321	MW321-DUP	10/21/2004	0.39	U	0.39	U	7.4		9.6		5.5		7.3	J	2.4	J	0.78	U	14		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M13	MW321	MW321	7/22/2005	0.96		0.46	U	14		13		7.3	M	8		0.92	U	0.92	U	12		0.92	U	0.92	U	0.46	U	0.091	U+	0.92	U
M13	MW321	MW321	10/20/2005	0.46	U	0.46	U	8.7		15		8.3		9.1		3.5		0.91	U	12		0.91	U	0.91	U	0.46	U	0.09	U+	0.91	U
M13	MW321	MW321	5/4/2006	0.39	U	0.39	U	1.1		0.5		0.071	U+	3.7		0.78	U	0.78	U	3.9		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M13	MW321	MW321	10/11/2006	0.96	U	0.96	U	6.4	*/JI	22	/JI	12	M/JI	9.7	/JI	1.9	U	1.9	U	10	/JI	1.9	U	1.9	U	0.96	U	0.19	U+	1.9	U
M13	MW321	MW321	4/30/2007	0.041	U+	0.035	U+	2.1		4.3		3		4.2		0.086	U+	0.14	U+	4.5		0.086	U+	0.13	U+	0.034	U+	0.081	U+	0.068	U+
M13	MW321	MW321	10/16/2007	0.041	U+	0.026	U+	5	/JI	8.1	/JI	5.2	/JI	5.9	/JI	0.12	U+	0.11	U+	8.4	/JI	0.098	U+	0.044	U+	0.038	U+	0.062	U+	0.092	U+
M13	MW321	MW321	5/20/2008	0.39	U	0.39	U	3.8		0.39	U	0.78	U	3.3		0.78	U	0.78	U	6		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
		Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
		Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
		Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M13	MW322	MW322	10/11/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M13	MW322	MW322	7/8/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M13	MW322	MW322	10/25/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.9	U
M13	MW322	MW322	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M13	MW322	MW322	10/27/2000	0.45	U	0.45	U	0.45	U	0.18	U	0.36	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.45	U	0.45	U	0.45	U	0.91	U
M13	MW322	MW322	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M13	MW322	MW322	10/23/2001	0.4	U	0.4	U	0.4	U	0.4	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.4	U	0.81	U
M13	MW322	MW322	5/9/2002	2.3	U	2.3	U	2.3	U	2.3	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	2.3	U	2.3	U	2.3	U	4.7	U
M13	MW322	MW322	10/18/2002	0.43	U	0.43	U	0.43	U	0.046	U+	0.23	U+	0.86	U	0.86	U*	0.86	U*	0.86	U	0.86	U*	0.86	U	0.43	U	0.43	U	0.86	U
M13	MW322	MW322	5/14/2003	0.41	U	0.41	U	0.41	U	0.044	U+	0.22	U+	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.41	U	0.82	U
M13	MW322	MW322	10/17/2003	0.45	U	0.45	U	0.45	U	0.048	U+	0.24	U+	0.9	U	3.1	J	0.9	U	0.9	U	1.2		0.9	U	0.45	U	0.45	U	0.9	U
M13	MW322	MW322	5/25/2004	0.45	U	0.45	U	0.45	U	0.048	U+	0.24	U+	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.45	U	0.45	U	0.9	U
M13	MW322	MW322	10/21/2004	0.72	U	0.72	U	0.72	U	0.22	U+	0.26	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.72	U	0.72	U	1.4	U
M13	MW322	MW322	7/21/2005	0.4	U	0.4	U	0.4	U	0.033	U+	0.073	U+	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.08	U+	0.81	U
M13	MW322	MW322	10/24/2005	0.49	U	0.49	U	0.49	U	0.041	U+	0.09	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.098	U+	0.99	U
M13	MW322	MW322	5/4/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M13	MW322	MW322	10/16/2006	0.51	U	0.51	U	0.51	U	0.042	U+	0.092	U+	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.1	U+	1	U
M13	MW322	MW322	4/26/2007	0.065	U+	0.055	U+	0.06	U+	0.053	U+	0.12	U+	0.058	U+	0.14	U+	0.23	U+	0.12	U+	0.14	U+	0.2	U+	0.053	U+	0.13	U+	0.11	U+
M13	MW322	MW322	10/12/2007	0.029	U+	0.018	U+	0.031	U+	0.051	U+	0.072	U+	0.05	U+	0.09	U+	0.077	U+	0.07	U+	0.07	U+	0.031	U+	0.027	U+	0.044	U+	0.066	U+
M13	MW322	MW322	5/13/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M13	MW345	MW345	10/25/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.073	U	NA		0.406		NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M13	MW345	MW345	7/8/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M13	MW345	MW345	7/8/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M13	MW345	MW345	10/25/1999	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M13	MW345	MW345	10/23/2000	0.49	U	0.49	U	0.49	U	0.19	U	0.39	U	0.97	U	0.97	U	0.97	U	0.97	U	0.97	U	0.49	U	0.49	U	0.49	U	0.97	U
M13	MW345	MW345	10/25/2001	0.68	U	0.68	U	0.68	U	0.68	U*	1.4	U*	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.68	U	0.68	U	1.4	U
M13	MW345	MW345	10/23/2002	0.49	U	0.49	U	0.49	U	0.053	U+	0.26	U+	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.99	U	0.49	U	0.49	U	0.99	U
M13	MW346	MW346	11/14/1991	0.449	U	0.611	U	0.635	U	0.064	U	0.074	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M13	MW346	MW346	7/8/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U

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		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200			
Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200			
Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS			
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M13	MW350	MW350	10/10/1991	0.449	U	0.611	U	3.25		43		0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U
M13	MW350	MW350	7/8/1998	0.19	U	0.16	U	6.4		0.12	U	0.22	U	49.8		0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U
M13	MW350	MW350	7/7/1999	0.39	U	0.39	U	2.8		0.31	U	0.31	U	6.7		0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U
M13	MW350	MW350	10/25/1999	0.44	U	0.44	U	1.9		0.23		0.35	U	2.3		0.87	U	NA		NA		NA		0.44	U	0.44	U	0.44	U	0.87	U
M13	MW350	MW350	5/12/2000	0.45	U	0.45	U	1.4		0.18	U	0.36	U	1.9		0.91	U	0.91	U	2.2		0.91	U	0.45	U	0.48		0.45	U	0.91	U
M13	MW350	MW350	10/26/2000	0.39	U	0.39	U	3.3		0.59		0.6		3.2		0.78	U	0.78	U	5		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M13	MW350	MW350	5/24/2001	0.39	U	0.39	U	2.4		0.39	U	0.78	U	2.3		0.78	U	0.78	U	3.6		0.78	U	0.39	U	0.39	U	0.39	U	0.78	U
M13	MW350	MW350	10/23/2001	0.42	U	0.42	U	1.5		0.42	U	0.85	U	2.3		0.85	U	0.85	U	3.6		0.85	U	0.42	U	0.42	U	0.42	U	0.85	U
M13	MW350	MW350	5/9/2002	0.55	U	0.55	U	1.7		0.55	U	1.1	U	2.1		1.1	U	1.1	U	3.3		1.1	U	0.55	U	0.55	U	0.55	U	1.1	U
M13	MW350	MW350	10/18/2002	0.47	U	0.47	U	2.2		0.051	U+	0.025	U+	2.7		0.95	U*	0.95	U*	3.9		0.95	U*	0.95	U	0.47	U	0.47	U	0.95	U
M13	MW350	MW350	5/15/2003	0.45	U	0.45	U	1		0.048	U+	0.24	U+	1.8		0.9	U	0.9	U	1.9		0.9	U	0.9	U	0.45	U	0.45	U	0.9	U
M13	MW350	MW350	10/16/2003	0.55	U	0.55	U	2.5		0.059	U+	0.29	U+	2.8		1.1	U	1.1	U	3.9		1.1	U	1.1	U	0.55	U	0.55	U	1.1	U
M13	MW350	MW350	5/25/2004	0.72	U	0.72	U	1.9		0.077	U+	0.38	U+	2.1		1.4	U	1.4	U	2.8		1.4	U	1.4	U	0.72	U	0.72	U	1.4	U
M13	MW350	MW350	10/21/2004	0.68	U	0.68	U	3		0.21	U+	0.25	U+	3.3		1.4	U	1.4	U	5.2		1.4	U	1.4	U	0.68	U	0.68	U	1.4	U
M13	MW350	MW350	7/22/2005	0.48	U	0.48	U	4.2		0.039	U+	0.088	U+	3.4		0.96	U	0.96	U	6.1		0.96	U	0.96	U	0.48	U	0.095	U+	0.96	U
M13	MW350	MW350	10/20/2005	0.72	U	0.72	U	2.6		0.059	U+	0.13	U+	3.1		1.4	U	1.4	U	5.1		1.4	U	1.4	U	0.72	U	0.14	U+	1.4	U
M13	MW350	MW350	5/4/2006	0.53	U	0.53	U	1.4		0.043	U+	0.1	U+	2.2		1.1	U	1.1	U	3		1.1	U	1.1	U	0.53	U	0.1	U+	1.1	U
M13	MW350	MW350	10/12/2006	0.73	U	0.73	U	1.9		0.06	U+	0.13	U+	2.8		1.5	U	1.5	U	4.3		1.5	U	1.5	U	0.73	U	0.14	U+	1.5	U
M13	MW350	MW350	4/30/2007	0.051	U+	0.043	U+	5.1		0.042	U+	0.092	U+	3.5		0.11	U+	0.18	U+	6.4		0.11	U+	0.16	U+	0.042	U+	0.1	U+	0.085	U+
M13	MW350	MW350	10/16/2007	0.027	U+	0.017	U+	5		0.45		0.066	U+	4.1		0.083	U+	0.071	U+	8.5		0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M13	MW350	MW350	5/20/2008	0.39	U	0.39	U	4		0.39	U	0.78	U	3.5		0.78	U	0.78	U	6.5		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M13	MW350	MW350-DUP	5/20/2008	0.39	U	0.39	U	3.8		0.39	U	0.78	U	3.2		0.78	U	0.78	U	6.1		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M13	MW362	MW362	2/3/2004	0.39	U	0.39	U	0.39	U	5.7		0.21	U+	1.6		0.78	U	0.78	U	1.3		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M13	MW362	MW362	5/25/2004	0.71	U	0.71	U	0.71	U	1.9		0.38	U+	2.1		1.4	U	1.4	U	1.7		1.4	U	1.4	U	0.71	U	0.71	U	1.4	U
M13	MW362	MW362	10/21/2004	0.39	U	0.39	U	0.39	U	8.1		0.88		2.1		0.78	U	0.78	U	1.7		0.78	U	0.78	U	0.39	U	0.39	U	0.78	U
M13	MW362	MW362	7/21/2005	0.54	U	0.54	U	0.54	U	6.9		0.098	U+	1.9		1.1	U	1.1	U	1.5		1.1	U	1.1	U	0.54	U	0.11	U+	1.1	U
M13	MW362	MW362	10/24/2005	0.6	U	0.6	U	0.6	U	0.049	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.6	U	0.12	U+	1.2	U
M13	MW362	MW362	5/4/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.8		2		0.78	U	0.78	U	1.7		0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U
M13	MW362	MW362	10/18/2006	0.53	U	0.53	U	0.53	U	0.043	U+	0.096	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.1	U+	1.1	U
M13	MW362	MW362	4/26/2007	0.042	U+	0.036	U+	0.039	U+	0.035	U+	0.077	U+	1.8		0.089	U+	0.15	U+	1.6		0.089	U+	0.13	U+	0.035	U+	0.083	U+	0.07	U+
M13	MW362	MW362-DUP	4/26/2007	0.049	U+	0.042	U+	0.046	U+	0.041	U+	0.09	U+	1.9		0.1	U+	0.17	U+	1.6		0.1	U+	0.15	U+	0.041	U+	0.098	U+	0.082	U+
M13	MW362	MW362	10/12/2007	0.027	U+	0.017	U+	0.029	U+	6.7		0.066	U+	1.8		0.083	U+	0.071	U+	1.5		0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+
M13	MW362	MW362	5/13/2008	0.45	U	0.45	U	0.45	U	0.45	U	0.9	U	1.3		0.9	U	0.9	U	1.1		0.9	U	0.9	U	0.45	U	0.45	U	0.9	U



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				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl				
				Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
				Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																		
				Risk Based RG	5.1	4	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																		
Surface Water RG	15	10	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																						
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M13	MW363	MW363	2/4/2004	0.77	U	0.77	U	0.77	U	0.063	U+	0.31	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.77	U	0.77	U	1.5	U			
M13	MW363	MW363-DUP	2/4/2004	0.58	U	0.58	U	0.58	U	0.063	U	0.31	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U			
M13	MW363	MW363	5/25/2004	0.68	U	0.68	U	0.68	U	0.074	U+	0.36	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.68	U	0.68	U	1.4	U			
M13	MW363	MW363	10/21/2004	0.51	U	0.51	U	0.51	U	0.16	U+	0.19	U+	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.51	U	0.51	U	1	U			
M13	MW363	MW363	10/24/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U			
M13	MW363	MW363	10/18/2006	0.74	U	0.74	U	0.74	U	0.061	U+	0.13	U+	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.74	U	0.15	U+	1.5	U			
M13	MW363	MW363	10/12/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+	0.061	U+			
M13	MW363	MW363	5/13/2008	0.53	U	0.53	U	0.53	U	0.53	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.53	U	0.53	U	1.1	U			
M13	MW364	MW364	2/4/2004	0.55	U	0.55	U	0.55	U	0.06	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U			
M13	MW364	MW364	5/24/2004	0.55	U	0.55	U	0.55	U	0.06	U+	0.29	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.55	U	1.1	U			
M13	MW364	MW364	10/21/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U			
M13	MW364	MW364	7/20/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U			
M13	MW364	MW364-DUP	7/20/2005	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U			
M13	MW364	MW364	10/24/2005	0.88	U	0.88	U	0.88	U	0.072	U+	0.16	U+	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	0.88	U	0.17	U+	1.8	U			
M13	MW364	MW364-DUP	10/24/2005	0.61	U	0.61	U	0.61	U	0.05	U+	0.11	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.61	U	0.12	U+	1.2	U			
M13	MW364	MW364	5/4/2006	0.66	U	0.66	U	0.66	U	0.054	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.66	U	0.13	U+	1.3	U			
M13	MW364	MW364-DUP	5/4/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U			
M13	MW364	MW364	10/18/2006	0.85	U	0.85	U	0.85	U	0.069	U+	0.15	U+	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	0.85	U	0.17	U+	1.7	U			
M13	MW364	MW364-DUP	10/18/2006	0.55	U	0.55	U	0.55	U	0.045	U+	0.1	U+	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.55	U	0.11	U+	1.1	U			
M13	MW364	MW364	4/26/2007	0.043	U+	0.036	U+	0.04	U+	0.035	U+	0.078	U+	0.038	U+	0.09	U+	0.15	U+	0.081	U+	0.09	U+	0.13	U+	0.035	U+	0.085	U+	0.072	U+	0.072	U+			
M13	MW364	MW364	10/12/2007	0.027	U+	0.017	U+	0.029	U+	0.047	U+	0.066	U+	0.046	U+	0.083	U+	0.071	U+	0.065	U+	0.065	U+	0.029	U+	0.025	U+	0.041	U+	0.061	U+	0.061	U+			
M13	MW364	MW364-DUP	10/12/2007	0.032	U+	0.02	U+	0.035	U+	0.056	U+	0.079	U+	0.055	U+	0.1	U+	0.085	U+	0.078	U+	0.078	U+	0.035	U+	0.03	U+	0.049	U+	0.073	U+	0.073	U+			
M13	MW364	MW364	5/13/2008	0.42	U	0.42	U	0.42	U	0.42	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U			
M13	MW806	MW806	5/15/2008	99		98		103		105		102		106		101		107		111		102		103		97		98		93						
M13	MW807	MW807	5/15/2008	0.41	U	0.41	U	0.41	U	0.41	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.82	U	0.41	U	0.41	U	0.82	U			
M13	MW807	MW807-DUP	5/15/2008	0.83	U	0.83	U	0.83	U	0.83	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	0.83	U	0.83	U	1.7	U			
M13	MW808	MW808	5/15/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U			
M13	MW809	MW809	5/15/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U			

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Compounds				1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M13	AEHA 14	AEHA 14	11/20/1985	1.4	U	2.76		12.9		NA		1.2	U	NA		NA		NA		NA		NA		NA		NA		700	U	5.6	U		
M13	AEHA 14	AEHA 14	4/23/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		700	U	5.6	U		
M13	AEHA 14	AEHA 14	7/27/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M13	AEHA 14	AEHA 14	10/14/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M13	AEHA 14	AEHA 14	7/8/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M13	AEHA 14R	AEHA 14R	5/15/2008	0.62	U	0.62	U	0.62	U	0.62	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.62	U	0.62	U	1.2	U		
M13	AEHA 15	AEHA 15	11/21/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M13	AEHA 15	AEHA 15	4/23/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		NA		5.6	U		
M13	AEHA 15	AEHA 15	7/27/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M13	AEHA 15	AEHA 15	10/11/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M13	AEHA 15	AEHA 15	7/8/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M13	AEHA 15	AEHA 15	5/20/2008	0.4	U	0.4	U	0.4	U	0.4	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.81	U		
M13	GC4	GC4	11/20/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M13	GC4	GC4	4/18/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M13	GC4	GC4	7/22/1988	1.51	U	1.26	U	4.3		3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M13	GC4	GC4	7/8/1998	0.19	U	0.611		0.14	U	0.12	U	0.22	U	0.24	U	0.04	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M13	GC6	GC6	7/8/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M13	M3	M3	11/20/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M13	M3	M3	4/24/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M13	M3	M3	7/22/1988	1.51	U	1.26	U	2.16	U	3.6	U	8.21		NA		2.79	U	NA		NA		NA		NA		NA		3.76	U	3.03	U		
M13	M3	M3	10/10/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		
M13	M3	M3	7/9/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	0.78	U	0.78	U	NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M13	M3	M3	10/25/1999	0.39	U	0.39	U*	0.39	U*	0.16	U	0.31	U	0.78	U*	0.78	U*	NA		NA		NA		0.39	U	0.39	U*	0.39	U	0.78	U		
M13	M3	M3	5/16/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M13	M3	M3	10/26/2000	0.39	U	0.39	U	0.39	U	0.16	U	0.31	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M13	M3	M3	5/24/2001	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U*	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.39	U	0.78	U		
M13	M3	M3	10/29/2001	0.46	U	0.46	U	0.46	U	0.46	U*	0.91	U*	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.46	U	0.46	U	0.46	U	0.91	U		

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				Compounds				1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
Minimum RG	5.1	4	9.5	0.42	0.42	NL	62	NL	NL	NL	260	51	2.6	200																					
Risk Based RG	5.1	10	9.5	0.42	0.42	NC	5100	NC	NC	NC	5100	51	2.6	200																					
Surface Water RG	15	4	75	330	150	NS	62	NS	NS	NS	260	8000	500	NS																					
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M13	MW126	MW126	5/27/1981	2.2	U	NA		2.9	U	0.25	U	1.8	U	NA		1.9	U	NA		NA		NA		NA		NA		NA		NA		1.8	U		
M13	MW126	MW126	11/5/1985	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M13	MW126	MW126	4/23/1986	1.4	U	2.3	U	1.9	U	0.56	U	1.2	U	NA		NA		NA		NA		NA		NA		NA		NA		7	U	5.6	U		
M13	MW126	MW126	7/20/1988		U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79		NA		NA		NA		NA		NA		NA		3.76	U	3.03	U		
M13	MW126	MW126	9/23/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M13	MW126	MW126	7/8/1998	0.19	U	0.16	U	1.2		2.4		0.22	U	3.5		0.4	U	NA		NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U		
M13	MW126	MW126	7/8/1999	0.39	U	0.39	U	0.39	U	0.31	U	0.31	U	3.7		0.78	U	NA		NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M13	MW126	MW126	10/25/1999	2		0.39	U	0.39	U	3.7		0.8		1.8		0.78	U	NA		NA		NA		NA		0.39	U	0.39	U	0.39	U	0.78	U		
M13	MW126	MW126	5/16/2000	0.39	U	0.39	U	0.39	U	6.3		0.31	U	2.5		1.3		0.78	U	2.1		0.78	U	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U		
M13	MW126	MW126	10/26/2000	0.47	U	0.47	U	0.35		6.4		1.9		2.6		0.94	U	0.94	U	2.2		0.94	U	0.47	U	0.47	U	0.47	U	0.47	U	0.94	U		
M13	MW126	MW126	5/24/2001	0.46	U	0.46	U	0.46	U	5.9		0.91	U*	2.1		0.91	U	0.91	U	1.8		0.91	U	0.46	U	0.46	U	0.46	U	0.46	U	0.91	U		
M13	MW126	MW126	10/25/2001	0.54	U	0.54	U	0.54	U	0.54	U*	1.1	U*	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.54	U	0.54	U	0.54	U	1.1	U				
M13	MW126	MW126	5/9/2002	0.78	U	0.78	U	0.78	U	5		1.6	U	1.9		1.6	U	1.6	U	1.6		1.6	U	0.78	U	0.78	U	0.78	U	0.78	U	1.6	U		
M13	MW126R	MW126R	2/4/2004	0.42	U	0.42	U	0.42	U	0.046	U+	0.22	U+	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.42	U	0.42	U	0.85	U		
M13	MW126R	MW126R	5/25/2004	0.58	U	0.58	U	0.58	U	0.091	U+	0.31	U+	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.58	U	0.58	U	1.2	U		
M13	MW126R	MW126R-DUP	5/25/2004	0.85	U	0.85	U	0.85	U	0.091	U	0.45	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	0.85	U	0.85	U	1.7	U		
M13	MW126R	MW126R	10/21/2004	0.39	U	0.39	U	0.39	U	0.12	U+	0.14	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		
M13	MW126R	MW126R	7/22/2005	0.48	U	0.48	U	0.48	U	0.039	U+	0.088	U+	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.48	U	0.095	U+	0.96	U		
M13	MW126R	MW126R	10/20/2005	0.7	U	0.7	U	0.7	U	0.058	U+	0.13	U+	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.14	U+	1.4	U		
M13	MW126R	MW126R	5/4/2006	0.64	U	0.64	U	0.64	U	0.053	U+	0.12	U+	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.64	U	0.13	U+	1.3	U		
M13	MW126R	MW126R	10/17/2006	0.39	U	0.39	U	0.39	U	0.032	U+	0.071	U+	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.077	U+	0.78	U		
M13	MW126R	MW126R	4/26/2007	0.056	U+	0.047	U+	0.052	U+	0.046	U+	0.1	U+	0.05	U+	0.12	U+	0.2	U+	0.11	U+	0.12	U+	0.17	U+	0.046	U+	0.11	U+	0.093	U+				
M13	MW126R	MW126R	10/12/2007	0.031	U+	0.02	U+	0.033	U+	0.054	U+	0.076	U+	0.053	U+	0.095	U+	0.082	U+	0.075	U+	0.075	U+	0.033	U+	0.029	U+	0.047	U+	0.07	U+	0.07	U+		
M13	MW126R	MW126R	05/20/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U		

**Summary of Historical Explosives Groundwater Analytical Results  
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Joliet Army Ammunition Plant - Wilmington, IL**

				1,3,5- Trinitrobenzene		1,3- Dinitrobenzene		2,4,6- Trinitrotoluene (TNT)		2,4- Dinitrotoluene		2,6- Dinitrotoluene		2-Amino-4,6- Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6- Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
				Compounds		Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M13	MW3	MW3	7/27/1998	0.19	U	0.16	U	0.14	U	0.12	U	0.22	U	0.24	U	0.4	U	NA		NA		NA		0.25	U	0.14	U	0.33	U	0.42	U

**GRU 2**  
Volatile Organic Compounds

**Summary of Historical Analytical Results for Volatile Organic Compounds in Groundwater**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, IL**

Site	Well ID	Sample Date	1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethane		Toluene		Trichloroethane		Trichloro- trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M6	MW118	07/10/1981	NA		NA		20		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M6	MW118	11/14/1985	0.8	U	3	U	0.8	U	NA		10		NA		3	U	NA		3	U	3	U	NA		3	U	NA		3	U	NA		NA		NA			
M6	MW118	04/22/1986	0.8	U	3	U	0.8	U	NA		NA		NA		3	U	NA		3	U	3	U	NA		3	U	NA		3	U	NA		NA		NA			
M6	MW118	05/03/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW118	10/17/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW118	05/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW118	10/16/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW118	05/19/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
M6	MW118	10/22/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
M6	MW118	07/13/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U	2	U		
M6	MW118	10/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW118	05/03/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U	1	U/R	2	U
M6	MW118	10/11/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW118	04/30/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U/UJ+		
M6	MW118	10/12/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M6	MW119	05/03/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW119	10/17/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW119-DUP	10/17/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW119	05/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW119	10/16/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW119	05/19/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2.2		1	U	1	U	1	U	NA		1	U	1	U		
M6	MW119	10/22/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
M6	MW119	07/18/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U	2	U		
M6	MW119	10/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW119	05/03/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U	1	U/R	2	U
M6	MW119	10/09/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U*	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW119	04/30/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U/UJ+		
M6	MW119-DUP	10/10/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U+	0.16	U+	0.55	U/UJ+		
M6	MW119	10/10/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M6	MW123	07/13/1998	5	U	5	U	5	U	5	U	10	U	10	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	NA		3		NA		5	U
M6	MW123-DUP	07/13/1998	5	U	5	U	5	U	5	U	10	U	10	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	NA		5	U	NA		5	U
M6	MW123	12/09/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	NA		1	U	NA		1	U
M6	MW125	10/15/1991	0.5	U	2.5		0.5	U	0.5	U	0.64	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		NA		0.84	U
M6	MW125	07/13/1998	5	U/R	5	U/R	5	U/R	5	U/R	5	U/R	5	U/R	5	U/R	5	U/R	5	U/R	5	U/R	NA		5	U/R	NA		5	U/R	NA		NA		NA		5	U/R
M6	MW125	12/09/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	NA		NA		NA		1	U
M6	MW160	07/13/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		NA		1	U
M6	MW161	07/10/1998	1	U	1	U	1	U	2		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		NA		NA		1	U
M6	MW162	07/13/1998	5	U/R	5	U/R	5	U/R	5	U/R	10	U/R	10	U/R	5	U/R	5	U/R	5	U/R	5	U/R	NA		5	U/R	NA		5	U/R	NA		NA		NA		5	U/R
M6	MW162-DUP	07/13/1998	5	U	5	U	5	U	5	U	10	U	10	U	5	U	5	U	5	U	5	U	NA		5	U	NA		5	U	NA		NA		NA		5	U
M6	MW162	12/09/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	NA		1	U	NA		NA		NA		1	U



**Summary of Historical Analytical Results for Volatile Organic Compounds in Groundwater  
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Site	Compounds		1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethane		Toluene		Trichloroethane		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M6	MW166	10/18/1995	0.5	U	1.2		0.93		0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M6	MW166	07/09/1998	1	U	1	U	1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M6	MW166	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M6	MW166	10/27/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M6	MW166	05/18/2000	0.5	U	1		0.7		0.5	U	2	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U/UJ	0.5	U		
M6	MW166	10/23/2000	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW166	04/26/2001	5	U	5	U	5	U	5	U	5	U	11	B	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	NA		5	U	5	U		
M6	MW166-DUP	04/26/2001	5	U	5	U	5	U	5	U	5	U	11	B	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	NA		5	U	5	U		
M6	MW166R	10/22/2001	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW166R	05/01/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW166R	10/16/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW166R-DUP	10/16/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW166R	05/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW166R	10/14/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW166R	05/19/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	0.69	F		
M6	MW166R	10/25/2004	1	U	1	U	1	U	1	U	10	U	10	U/J	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW166R	07/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M6	MW166R-PER	07/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M6	MW166R	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	6.5	J-UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ		
M6	MW166R	11/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW166R	05/02/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U/R	2	U		
M6	MW166R	10/10/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW166R	04/24/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U+		
M6	MW166R	10/08/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U/R+	0.23	U+	0.15	U+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M6	MW166R	05/05/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	4	B	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW208	07/26/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M6	MW208	07/10/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M6	MW210	05/11/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M6	MW211	05/11/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M6	MW212	07/25/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M6	MW213	07/25/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M6	MW214	07/15/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M6	MW215	07/15/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M6	MW307	07/10/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M6	MW308	07/10/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M6	MW309	07/10/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		

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Site	Compounds		1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethane		Toluene		Trichloroethane		Trichloro- trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M6	MW311	10/18/1995	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13		0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M6	MW311	07/10/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M6	MW311	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M6	MW311	10/27/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M6	MW311	05/18/2000	0.5	U	0.5	U	0.7	U	0.5	U	2	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U/UJ	0.5	U		
M6	MW311	10/23/2000	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U/UJ	5	U		
M6	MW311	05/18/2001	5	U	5	U	5	U	5	U	5	JB	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW311	10/22/2001	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW311	05/01/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	9.9	UB/B	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW311	10/21/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW311	05/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW311	10/14/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW311	05/19/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW311	10/22/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW311	07/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U/R	1	U/R		
M6	MW311-PER	07/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M6	MW311	10/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U		
M6	MW311	05/02/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U/R	2	U		
M6	MW311	10/10/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW311	04/24/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U+		
M6	MW311	10/08/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U/R+	0.23	U+	0.15	U+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		

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Site	Well ID	Sample Date	1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)		
			Compounds		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		
			Unit																																		
			Groundwater Class 1 RG	200	700	5	70	NC	NC	5	700 (NC)	100	700	5 (NC)	5	1000	5	NA	2 (NC)	10000																	
			Groundwater Class 2 RG	1000	3500	25	200	NC	NC	25	3500 (NC)	500	1000	50 (NC)	25	2500	25	NA	10 (NC)	10000																	
Surface Water RG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW312	07/10/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U	
M6	MW312	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U	
M6	MW312	10/27/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U	
M6	MW312	05/18/2000	0.5	U	0.5	U	0.5	U	0.5	U	2	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.5	U/UJ	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	
M6	MW312	10/23/2000	5	U	5	U	5	U	5	U	5	U/UJ	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M6	MW312	05/18/2001	5	U	5	U	5	U	5	U	5	J/B	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M6	MW312	10/22/2001	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M6	MW312	05/01/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M6	MW312	10/21/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M6	MW312	05/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M6	MW312	10/14/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M6	MW312	05/19/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U	
M6	MW312	10/22/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U	
M6	MW312	07/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U	
M6	MW312-PER	07/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U	
M6	MW312	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	6.6	J-UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ	
M6	MW312	11/22/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U	
M6	MW312	05/02/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U/R	2	U	
M6	MW312	10/10/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U	
M6	MW312	04/24/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U+	
M6	MW312	10/08/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U/R+	0.23	U+	0.15	U+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+	
M6	MW313	07/13/1998	5	U/R	5	U/R	5	U/R	5	U/R	10	U/R	10	U/R	5	U/R	5	U/R	5	U/R	5	U/R	NA		2	J	NA		5	U/R	NA		NA		5	U/R	
M6	MW313	12/09/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	NA		1	U	NA		NA		1	U	
M6	MW314	07/10/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U	
M6	MW315	07/10/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U	
M6	MW316	07/09/1998	5	U	5	U	5	U	5	U	10	U	10	U	5	U	5	U	5	U	5	U	NA		5	U	NA		5	U	NA		NA		5	U	
M6	MW317	07/09/1998	5	U/R	5	U/R	5	U/R	5	U/R	10	U/R	10	U/R	5	U/R	5	U/R	5	U/R	5	U/R	NA		5	U/R	NA		5	U/R	NA		NA		5	U/R	
M6	MW318	07/09/1998	5	U	5	U	5	U	5	U	10	U	10	U	5	U	5	U	5	U	5	U	NA		5	U	NA		5	U	NA		NA		5	U	
M6	MW319	07/09/1998	5	U	5	U	5	U	5	U	10	U	10	U	5	U	5	U	5	U	5	U	NA		5	U	NA		5	U	NA		NA		5	U	

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	Compounds		1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
	Surface Water RG			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW320	10/18/1995	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M6	MW320	07/10/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M6	MW320	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M6	MW320	10/28/1999	5	U	5	U	5	U	5	U	5	U	5	U/R	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M6	MW320-DUP	10/28/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M6	MW320	05/18/2000	0.5	U	0.6		0.5	U	1		2	U	2	U/UJ	0.5	U	5	U/UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U/UJ	0.5	U		
M6	MW320	10/23/2000	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW320	04/26/2001	5	U	5	U	5	U	5	U	5	U	13	B	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	NA		5	U	5	U
M6	MW320R	10/22/2001	5	U	5	U	5	U	6		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW320R	05/01/2002	5	U	5	U	5	U	5	J	5	U	5	U	5	U	5	U	5	U	5	U	5.1	UB/B	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW320R	10/16/2002	5	U	5	U	5	U	6.3		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW320R	05/13/2003	5	U	5	U	5	U	6.3		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW320R	10/13/2003	5	U	5	U	5	U	6.8		5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW320R	05/19/2004	1	U	1	U	1	U	6.7		10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1.1			
M6	MW320R	10/25/2004	1	U	1	U	1	U	6.6		10	U	10	U/J	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW320R	07/19/2005	1	U	1	U	1	U	6.3		10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M6	MW320R-PER	07/21/2005	1	U	1	U	1	U	4.3		10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M6	MW320R	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	5.9	J-/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	6.2	J-/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ		
M6	MW320R	11/21/2005	1	U	1	U	1	U	6.7		10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW320R	05/02/2006	1	U	1	U	1	U	4.8		10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U/R	2	U		
M6	MW320R	10/10/2006	1	U	1	U	1	U	7.8		10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW320R	04/24/2007	0.17	U+	0.15	U+	0.25	U+	5		1	U+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U+		
M6	MW320R	10/08/2007	0.17	U+	0.15	U+	0.25	U+	5.6		1	U/R+	1.4	U/R+	0.23	U+	0.15	U+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M6	MW320R	05/05/2008	1	U	1	U	1	U	4.7		10	U	10	U	1	U	5	UJ	1	U	1	U	4.1	B	1	U	1	U	1	U	1	U	1	U	1	U	2	U

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Compounds			1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethane		Toluene		Trichloroethane		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW650	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M6	MW650	10/27/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M6	MW650	05/18/2000	0.5	U	0.5	U	0.5	U	0.5	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U/UJ	0.5	U		
M6	MW650-DUP	05/18/2000	0.5	U	0.5	U	0.5	U	0.5	U	2	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	2	B	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U		
M6	MW650	10/23/2000	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		0.5	U/UJ	5	U		
M6	MW650-DUP	10/23/2000	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		0.5	U/UJ	5	U		
M6	MW650	05/18/2001	5	U	5	U	5	U	5	U	8	J/B	10		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650	10/22/2001	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650-DUP	10/22/2001	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650	05/01/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	6.3	U/B/B	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650	10/22/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650-DUP	10/22/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650	05/15/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650-DUP	05/15/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650	10/15/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650-DUP	10/15/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW650	05/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U/B	1.3		1	U	1	U	NA		1	U	1	U		
M6	MW650-DUP	05/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2.1	U/B	1.3		1	U	1	U	NA		1	U	1	U		
M6	MW650	10/22/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1.5	J	1	U	1	U	NA		1	U	1	U		
M6	MW650-DUP	10/22/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1.6	J	1	U	1	U	NA		1	U	1	U		
M6	MW650	07/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M6	MW650-PER	07/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M6	MW650	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	6.3	J-UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ		
M6	MW650	11/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW650	05/01/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	1.1	JB	1	U	1	U	1	U	1	U	1	U/R	2	U		
M6	MW650	10/09/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U*	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW650-DUP	04/25/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U/UJ+		
M6	MW650	04/25/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U/UJ+		
M6	MW650	10/04/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U+	0.15	U+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M6	MW650	05/05/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U		

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Site	Well ID	Sample Date	1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethane		Toluene		Trichloroethane		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M6	MW651	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U	5	U
M6	MW651	10/27/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U	5	U
M6	MW651	05/18/2000	0.5	U	0.5	U	0.5	U	0.5	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U		
M6	MW651	10/23/2000	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U/UJ	5	U		
M6	MW651	05/18/2001	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW651	10/02/2001	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW651	05/01/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	11	UB/B	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW651	10/21/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW651	05/15/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW651	10/15/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW651	05/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2.4	U/B	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW651	10/22/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW651	07/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M6	MW651-PER	07/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M6	MW651	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	6.3	J-UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ		
M6	MW651	11/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW651	05/01/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	1	JB	1	U	1	U	1	U	1	U	1	U/R	2	U		
M6	MW651	10/09/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U*	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW651	04/25/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U/UJ+		
M6	MW651	10/04/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U+	0.15	U+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M6	MW651	05/05/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	4	B	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW655	05/19/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW655	10/20/2004	1	U	1	U	1	U	1	U	10	U	10	U/J	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW655	05/07/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	3.2	B	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW662	05/07/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW662	10/17/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW662	05/12/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW662	10/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW662	05/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2.3	U/B	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW662	10/25/2004	1	U	1	U	1	U	1	U	10	U	10	U/J	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M6	MW662	07/13/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U	2	U		
M6	MW662	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	6.5	J-UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ		
M6	MW662	11/22/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW662	05/03/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U/R	2	U		
M6	MW662	10/09/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U*	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M6	MW662	04/24/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U+		
M6	MW662	10/10/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M6	MW662	05/06/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U		



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Compounds			1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M6	MW663	05/07/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW663	10/17/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW663	05/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW663	10/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW663	05/20/2004	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	5	U	1	U	1	U	NA		1	U	1	U		
M6	MW663	10/25/2004	1	U	1	U	1	U	1	U	1	U	10	U	10	U/J	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	NA		1	U	1	U		
M6	MW663	07/13/2005	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U	2	U
M6	MW663-DUP	07/13/2005	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW663	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	6.9	J-U/J	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ
M6	MW663-DUP	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	7.4	J-U/J	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ
M6	MW663	11/22/2005	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW663-DUP	11/22/2005	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW663	05/03/2006	1	U	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U/R	2	U
M6	MW663-DUP	05/03/2006	1	U	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U/R	2	U
M6	MW663	10/09/2006	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U*	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW663-DUP	10/09/2006	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U*	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW663	04/24/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U+		
M6	MW663	10/10/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M6	MW663	05/06/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW664	05/07/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW664	10/17/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW664	05/12/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW664	10/14/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M6	MW664	05/24/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	6.7		1	U	NA		1	U	1	U		
M6	MW664	10/25/2004	1	U	1	U	1	U	1	U	1	U	10	U	10	U/J	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U
M6	MW664	07/13/2005	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U	2	U
M6	MW664	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	6.5	J-U/J	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ
M6	MW664	11/22/2005	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW664	05/03/2006	1	U	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U/R	2	U
M6	MW664	10/09/2006	1	U	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U*	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW664	04/26/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/R+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U/UJ+	0.54	U/UJ+		
M6	MW664	10/12/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M6	MW664	05/06/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U

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Site	Compounds		1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)	
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW665	05/07/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U
M6	MW665	10/17/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U
M6	MW665	05/13/2003	5	U	5	U	5	U	5	U	5	U	6		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U
M6	MW665	10/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U
M6	MW665	05/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2.3	U/B	1	U	1	U	1	U	NA		1	U	1	U
M6	MW665	10/25/2004	1	U	1	U	1	U	1	U	10	U	10	U/J	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U
M6	MW665	07/13/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U	2	U
M6	MW665	10/17/2005	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	10	U/UJ	10	U/UJ	1	U/UJ	2	U/UJ	1	U/UJ	1	U/UJ	6.8	J-UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	1	U/UJ	2	U/UJ
M6	MW665	11/22/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U
M6	MW665	05/03/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	2	UB	1	U	1	U	1	U	1	U	1	U/R	2	U
M6	MW665	10/09/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U*	1	U	1	U	2.7		1	U	1	U	1	U	1	U	1	U	2	U
M6	MW665	04/26/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/R+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U/UJ+	0.54	U/UJ+
M6	MW665	10/12/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+
M6	MW665	05/06/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U

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Compounds			1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M7	MW112	08/09/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	4.2		0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M7	MW113	08/09/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M7	MW124	05/27/1981	900		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M7	MW124	11/15/1985	NA		NA		NA		NA		10		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M7	MW124	11/21/1985	20		3	U	0.8	U	NA		NA		NA		3	U	NA		3	U	3	U	NA		6		3	US	3	U	NA		NA		NA			
M7	MW124	04/22/1986	0.8	U	4		0.8	U	NA		NA		NA		3	U	NA		3	U	3	U	NA		3	U	3	US	3	U	NA		NA		NA			
M7	MW124	08/28/1991	5		1.9		0.5	U	0.64		6.4	U	13	U	0.5	U	1.6		0.5	U	0.5	U	NA		4		0.5	U	0.5	U	NA		NA		0.84	U		
M7	MW124R	12/09/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		3.6		1	U	NA		NA		1	U				
M7	MW124R-DUP	12/09/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		4		NA		1	U	NA		NA		1	U		
M7	MW124R	05/18/2004	1	U/J	1	U/J	1	U/J	1	U/J	10	U/J	10	U/J	1	U/J	2	U/J	1	U/J	1	U/J	2	U/J	1.2	J	1	U/J	1	U/J	NA		1	U/J	1	U/J		
M7	MW124R-DUP	05/18/2004	1	U/J	1	U/J	1	U/J	1	U/J	10	U/J	10	U/J	1	U/J	2	U/J	1	U/J	1	U/J	2	U/J	1.1	J	1	U/J	1	U/J	NA		1	U/J	1	U/J		
M7	MW124R	10/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1.6	J	1	U	1	U	NA		1	U	1	U		
M7	MW124R-DUP	10/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1.4	J	1	U	1	U	NA		1	U	1	U		
M7	MW124R	05/08/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	5.6	B	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M7	MW124R-DUP	05/08/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	6	B	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M7	MW159	10/25/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M7	MW216	07/28/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M7	MW216	10/17/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
M7	MW217	07/18/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M7	MW217	08/27/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		

**Summary of Historical Analytical Results for Volatile Organic Compounds in Groundwater  
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Compounds			1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M8	MW121	07/01/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M8	MW147	11/14/1985	0.8	U	3	U	0.8	U	NA		10		NA		3	U	NA		3	U	3	U	NA		3	U	3	U/S	3	U	NA		NA		NA			
M8	MW147	04/22/1986	0.8	U	3	U	0.8	U	NA		NA		NA		3	U	NA		3	U	3	U	NA		3	U	3	U/S	3	U	NA		NA		NA			
M8	MW147	09/23/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M8	MW147	07/01/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M8	MW147	10/27/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M8	MW147R	10/23/2001	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW147R	05/01/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	7.8	B/UB	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW147R	10/25/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW147R	10/21/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW147R	10/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M8	MW147R	10/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M8	MW147R	10/12/2006	1	U	1	U	1	U	1	U	10	U	16		1	U	2	U/UJ	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M8	MW147R	10/16/2007	0.17	U+	1.4		0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M8	MW147R	05/19/2008	1	U	1	UJ	1	U	2	U	10	U	10	UJ	1	U	5	UJ	1	U	1	U	1	UJ	1	U	1	U	1	U	1	U	1	U	2	U		

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Site	Well ID	Sample Date	1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethane		Toluene		Trichloroethane		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M8	MW148	07/10/1981	50		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M8	MW148	11/14/1985	10		20		0.8 U		NA		20		NA		3 U		NA		3 U		3 U		NA		3 U		3 U/S		3 U		NA		NA		NA			
M8	MW148	04/22/1986	0.8	U	20		0.8 U		NA		NA		NA		3 U		NA		3 U		3 U		NA		3 U		3 U/S		3 U		NA		NA		NA			
M8	MW148	09/23/1991	9.5		27		0.5 U		0.5 U		6.4 U		13 U		0.5 U		0.5 U		0.5 U		0.5 U		NA		1.6 U		0.5 U		0.5 U		NA		NA		0.84 U			
M8	MW148	12/02/1994	6		0.68 U		0.5 U		0.66		6.4 U		13 U		0.5 U		0.5 U		0.5 U		0.5 U		NA		5.1		0.55		1.4		NA		NA		0.84 U			
M8	MW148	09/10/1995	5.4		17		0.5 U		0.5 U		6.4 U		300		0.5 U		0.5 U		0.5 U		0.5 U		NA		3.2		0.5 U		0.72		NA		NA		0.84 U			
M8	MW148	09/21/1995	12		2		0.5 U		1.3		6.4 U		13 U		0.5 U		0.5 U		0.5 U		0.5 U		NA		4.9		5.6		2.1		NA		NA		86			
M8	MW148	06/30/1999	5	U	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		6 U		5 U		5 U		NA		NA		5 U			
M8	MW148-DUP	06/30/1999	5	U	5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		6 U		5 U		5 U		NA		NA		5 U			
M8	MW148	10/27/1999	5	U	13 J		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U		5 U		NA		NA		5 U			
M8	MW148-DUP	10/27/1999	5	U	13		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U		5 U		NA		NA		5 U			
M8	MW148	05/18/2000	0.5	U	0.5 U		0.5 U		0.5 U		2 U		2 U/UJ		0.5 U		2 U/UJ		0.5 U		0.5 U		0.5 U/UJ		7		0.5 U		0.7		NA		0.5 U		0.5 U			
M8	MW148	10/23/2000	5	U	5 U		5 U		5 U		5 U		5 U/UJ		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148	05/18/2001	4	J	5 U		5 U		5 U		5 U/UJ		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148RR	10/23/2001	5	U	10		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148RR-DUP	10/23/2001	5	U	8		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148RR	05/07/2002	5	U	5		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148RR	10/25/2002	5	U	6.9		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148RR	05/16/2003	5	U	5.7		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148RR-DUP	05/16/2003	5	U	5.8		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148RR	10/21/2003	5	U	5.3		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148RR-DUP	10/21/2003	5	U	4.4 J		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		5 U		NA		5 U		5 U			
M8	MW148RR	05/20/2004	1	U	4.7		1 U		1 U		10 U		10 U		1 U		2 U/J		1 U		1 U		2 U		1 U		1 U		1 U		NA		1 U		1 U			
M8	MW148RR-DUP	05/20/2004	1	U	4.5		1 U		1 U		10 U		10 U		1 U		2 U/J		1 U		1 U		2 U		1 U		1 U		1 U		NA		1 U		1 U			
M8	MW148RR	10/20/2004	1	U	4.8		1 U		1 U		10 U		10 U		1 U		2 U/J		1 U		1 U		2 U		1 U		1 U		1 U		NA		1 U		1 U			
M8	MW148RR-DUP	10/20/2004	1	U	4.2		1 U		1 U		10 U		10 U		1 U		2 U/J		1 U		1 U		2 U		1 U		1 U		1 U		NA		1 U		1 U			
M8	MW148RR	07/21/2005	1	U	3.4		1 U		1 U		10 U		10 U		1 U		2 U/R		1 U		1 U		2 U		1 U		1 U		1 U		1 U/R		1 U/R		2 U			
M8	MW148RR	10/19/2005	1	U	3.6		1 U		1 U		10 U		10 U		1 U		2 U		1 U		1 U		2 U		1 U		1 U		1 U		1 U/UJ		1 U		2 U			
M8	MW148RR-DUP	10/19/2005	1	U	3.6		1 U		1 U		10 U		10 U		1 U		2 U		1 U		1 U		2 U		1 U		1 U		1 U		1 U/UJ		1 U		2 U			
M8	MW148RR	05/04/2006	1	U	2.4		1 U		1 U		10 U/UJ		10 U		1 U		2 U/R		1 U		1 U		2 UB		1 U		1 U		1 U		1 U		1 U/R		2 U			
M8	MW148RR-DUP	05/04/2006	1	U	2.1		1 U		1 U		10 U/UJ		10 U		1 U		2 U/R		1 U		1 U		1 JB		1 U		1 U		1 U		1 U		1 U/R		2 U			
M8	MW148RR	10/12/2006	1	U	2.7		1 U		1 U		10 U		10 U		1 U		2 U/UJ		1 U		1 U		2 U		1 U		1 U		1 U		1 U		1 U		2 U			
M8	MW148RR-DUP	10/12/2006	1	U	3.1		1 U		1 U		10 U		10 U		1 U		2 U/UJ		1 U		1 U		2 U		1 U		1 U		1 U		1 U		1 U		2 U			
M8	MW148RR	05/01/2007	0.17	U+	1.9		0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U/UJ+		
M8	MW148RR	10/16/2007	0.17	U+	1.7		0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M8	MW148RR-DUP	10/16/2007	0.17	U+	1.5		0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M8	MW148RR	05/19/2008	1	U	1 UJ		1 U		2 U		10 U		10 UJ		1 U		5 UJ		1 U		1 U		1 UJ		1 U		1 U		1 U		1 U		1 U		2 U			

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**Joliet Army Ammunition Plant - Wilmington, IL**

Site	Well ID	Sample Date	1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethane		Toluene		Trichloroethane		Trichloro- trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M8	MW323	10/23/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M8	MW323	06/30/1998	10		17		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M8	MW323-DUP	06/30/1998	10		17		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M8	MW323	06/30/1999	5	U	14		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M8	MW323	10/27/1999	10		20		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M8	MW323	05/18/2000	0.5	U	18		0.5	U	0.5	U	2	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.8	J/B	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U		
M8	MW323	10/23/2000	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U/UJ	5	U		
M8	MW323	05/18/2001	5	U	5	U	5	U	5	U	4	J/B	9		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW323R	10/22/2001	5	U	5	U	5	U	5	U	5	U	6		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW323R	05/07/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW323R	05/16/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW323R	10/21/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW323R	05/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M8	MW323R	10/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M8	MW323R	07/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M8	MW323R	10/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U		
M8	MW323R	05/04/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	1.1	J/B	1	U	1	U	1	U	1	U	1	U	1	U/R	2	U
M8	MW323R	10/12/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/UJ	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M8	MW323R	05/01/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U/UJ+		
M8	MW323R	10/16/2007	0.17	U+	1.4		0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M8	MW323R	05/19/2008	1	U	1	UJ	1	U	2	U	10	U	10	UJ	1	U	5	UJ	1	U	1	U	1	UJ	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M8	MW324	10/23/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M8	MW324	07/01/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M8	MW325	10/23/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	14		0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.5	U		
M8	MW325	06/30/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M8	MW325	10/23/2000	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW325R	11/01/2001	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW325R	10/23/2002	5	U	5	U	5	U	5	U	5	U	6.5		5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW325R	10/13/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW325R	10/21/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
M8	MW325R	10/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M8	MW325R	10/12/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/UJ	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M8	MW325R	10/16/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M8	MW325R	05/19/2008	1	U	1	UJ	1	U	2	U	10	U	10	UJ	1	U	5	UJ	1	U	1	U	1	UJ	1	U	1	U	1	U	1	U	1	U	1	U	2	U



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		Compounds	1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)		
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	
M8	MW327	09/24/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U	
M8	MW327R	06/30/1999	5	U	5	U	5	U	14		5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		16		5	U	
M8	MW327R	10/27/1999	5	U	5	U	5	U	34		5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U	
M8	MW327R-DUP	10/27/1999	5	U	5	U	5	U	34		5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U	
M8	MW327R	05/18/2000	0.5	U	0.5	U	0.5	U	30		2	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U/UJ	0.5	U	
M8	MW327R-DUP	05/18/2000	0.5	U	0.5	U	0.5	U	32		2	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.5	U/UJ	0.5	U	0.5	U	0.5	U	NA		0.5	U/UJ	0.5	U	
M8	MW327R	10/23/2000	5	U	5	U	5	U	27		5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		16	U/UJ	5	U	
M8	MW327R-DUP	10/23/2000	5	U	5	U	5	U	27		5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		16	U/UJ	5	U	
M8	MW327R	05/18/2001	5	U	5	U	5	U	18		4	J/B	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		6		5	U	
M8	MW327R-DUP	05/18/2001	5	U	5	U	5	U	18		10	J/B	11		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		6		5	U	
M8	MW327R	10/22/2001	5	U	5	U	5	U	3	J	5	U	17		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M8	MW327R	05/07/2002	5	U	5	U	5	U	5	U	5	U	5.7		5	U	5	U	5	U	5	U	2.7	UB/J	5	U	5	U	5	U	NA		5	U	5	U	
M8	MW327R	05/16/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M8	MW327R	10/21/2003	5	U	5	U	5	U	5	U	5	U	5.4		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	
M8	MW327R	05/20/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U	
M8	MW327R	10/20/2004	1	U	1	U	1	U	0.71	F	10	U	10	U	1	U	2.5	J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U	
M8	MW327R	07/21/2005	1	U	1	U	1	U	1	U	10	U	7.6		1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U	
M8	MW327R	10/20/2005	1	U	1	U	1	U	0.92	U	10	U	9.3	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U	
M8	MW327R	05/04/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	1	JB	1	U	1	U	1	U	1	U	1	U/R	2	U	
M8	MW327R	10/17/2006	1	U	1	U	1	U	1.2		10	U	10	U	1	U	2	U*/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	2	U	
M8	MW327R	05/01/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U/UJ+	
M8	MW327R	10/16/2007	0.17	U+	1.4		0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+	
M8	MW327R	05/19/2008	1	U	1	UJ	1	U	2	U	10	U	10	UJ	1	U	5	UJ	1	U	1	U	1	UJ	1	U	1	U	1	U	1	U	1	U	2	U	
M8	MW327R-DUP	05/19/2008	1	U	1	UJ	1	U	2	U	10	U	5.1	J	1	U	5	UJ	1	U	1	U	1	UJ	1	U	1	U	1	U	1	U	1	U	2	U	

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Compounds			1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
Surface Water RG			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M8	MW330	12/02/1994	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.93			
M8	MW330	07/01/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		1	U	1	U		
M8	MW330	05/07/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW330	10/23/2002	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW330	05/12/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW330	10/21/2003	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U/UJ	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U		
M8	MW330	05/21/2004	1	U	1	U	1	U	1	U	10	U	10	U/J	1	U	2	U/U	1	U	1	U	1.9	UB/UJ	1	U	1	U	1	U	NA		1	U	1	U		
M8	MW330	10/21/2004	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/J	1	U	1	U	2	U	1	U	1	U	1	U	NA		1	U	1	U		
M8	MW330	07/21/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/R	1	U	1	U	2	U	1	U	1	U	1	U	1	U/R	1	U/R	2	U		
M8	MW330	10/19/2005	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U		
M8	MW330	05/04/2006	1	U	1	U	1	U	1	U	10	U/UJ	10	U	1	U	2	U/R	1	U	1	U	1.1	JB	1	U	1	U	1	U	1	U	1	U/R	2	U		
M8	MW330	10/12/2006	1	U	1	U	1	U	1	U	10	U	10	U	1	U	2	U/UJ	1	U	1	U	2	U	1	U	1	U	1	U	1	U	1	U	1	U		
M8	MW330-DUP	04/30/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U+	0.54	U/UJ+		
M8	MW330	04/30/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U+	1.4	U/UJ+	0.23	U/UJ+	0.15	U/UJ+	0.15	U/UJ+	0.21	U/UJ+	0.24	U+	0.18	U+	0.18	U/UJ+	0.13	U+	0.38	U/UJ+	0.16	U/UJ+	0.54	U/UJ+		
M8	MW330	10/16/2007	0.17	U+	0.15	U+	0.25	U+	0.34	U+	1	U/R+	1.4	U+	0.23	U+	0.15	U/UJ+	0.15	U+	0.21	U+	0.24	U+	0.18	U+	0.18	U+	0.13	U+	0.38	U+	0.16	U+	0.55	U+		
M8	MW330	05/19/2008	1	UJ	1	UJ	1	UJ	2	UJ	10	UJ	10	UJ	1	UR	5	UJ	1	UR	1	UR	1	UJ	1	UJ	1	UR	1	UJ	1	UJ	1	UJ	2	UR		
M8	MW332	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M8	MW332	12/02/1994	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M8	MW332	07/01/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M8	MW332	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M8	MW332	10/28/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M8	MW360	12/01/1992	2.2		4		0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
M8	MW360	12/02/1994	0.81		4.6		0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
M8	MW361	12/01/1992	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
M8	MW361	12/02/1994	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
M8	SW10	07/28/1988	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	NA		0.5	U	NA		NA		0.84	U		
M8	SW10	10/21/1991	6.5	U	5	U	5	U	0.5	U	6.4	U	13	U	5	U	0.5	U	5	U	5	U	NA		1.4	U	NA		1.5	U	NA		NA		5	U		

**Summary of Historical Analytical Results for Volatile Organic Compounds in Groundwater  
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Joliet Army Ammunition Plant - Wilmington, IL**

Compounds			1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M13	AEHA 14	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	AEHA 14R	05/15/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U		
M13	AEHA 15	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	AEHA 15	05/20/2008	1	U	1	UJ	1	U	2	U	10	U	10	UJ	1	U	5	UJ	1	U	1	U	1	UJ	1	U	1	U	1	U	1	U	1	U	2	U		
M13	GC3	10/10/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	GC6	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	M1	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	MW126	09/23/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	MW126R	05/20/2008	1	U	1	UJ	1	U	2	U	10	U	10	UJ	1	U	5	UJ	1	U	1	U	1	UJ	1	U	1	U	1	U	1	U	1	U	2	U		
M13	MW321	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	MW322	10/10/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	MW345	10/25/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	MW346	10/25/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	MW350	10/10/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M13	MW362	05/13/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U		
M13	MW806	05/15/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U		
M13	MW807	05/15/2008	1	U	1	U	1	U	2	U	10	R	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U		
M13	MW807-DUP	05/15/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U		
M13	MW808	05/15/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U		
M13	MW809	05/15/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U		

**GRU 2**  
Metals and Indicator Parameters

**Summary of Historical Analytical Results for Indicator Parameters in Groundwater**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, IL**

Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	MW104	5/20/1981	NA		NA		NA		NA		84		NA		NA		5.5	U	100	U
M1	MW104	4/28/1988	NA		NA		NA		NA		NA		NA		NA		0.35	U	142	
M1	MW104	8/2/1991	NA		NA		19.5		NA		30.2		NA		NA		4.01	U	38.8	U
M1	MW104	7/15/1998	NA		NA		NA		NA		NA		NA		NA		5	U	5710	
M1	MW105	5/20/1981	NA		NA		NA		NA		84		NA		NA		5.5	U	100	U
M1	MW105	4/28/1988	NA		NA		NA		NA		NA		NA		NA		0.35	U	150	
M1	MW105	8/2/1991	NA		NA		10	U	NA		67.3		NA		NA		10		4.01	U
M1	MW105	7/13/1998	0.02	U	268		92		NA	1030	39.4		7		0.1	U	1.32		5	U
M1	MW105	7/24/1998	NA		NA		NA		NA		NA		2	U	NA		NA		NA	
M1	MW105	5/25/2000	NA		NA		NA		NA		44.4	J	NA		NA		NA		NA	
M1	MW105	10/30/2000	NA		NA		NA		NA		70.7		NA		NA		NA		NA	
M1	MW105	5/23/2001	NA		NA		NA		NA		27.6		NA		NA		NA		NA	
M1	MW105	10/29/2001	NA		NA		NA		NA		88		NA		NA		NA		NA	
M1	MW105	5/2/2002	NA		NA		NA		NA		43		NA		NA		NA		NA	
M1	MW105	10/21/2002	NA		NA		NA		NA		83		NA		NA		NA		NA	
M1	MW105	5/20/2003	NA		NA		NA		NA		58	J	NA		NA		NA		NA	
M1	MW105	10/22/2003	0.05	U	370		0.14	J	NA	0.02	U	NA	0.1	U/R	NA	84	J	1	U	
M1	MW105	5/18/2004	NA		NA		NA		NA		47		NA		NA		NA		NA	
M1	MW105	10/18/2004	NA		NA		NA		NA		100		NA		NA		NA		NA	
M1	MW105	7/19/2005	NA		NA		NA		NA		93		NA		NA		NA		NA	
M1	MW105	10/12/2005	NA		NA		NA		NA		110		NA		NA		NA		NA	
M1	MW105	4/28/2006	NA		NA		NA		NA		76		NA		NA		NA		NA	
M1	MW105	10/12/2006	NA		NA		NA		NA		100		NA		NA		NA		NA	
M1	MW105	4/24/2007	NA		NA		NA		NA		10	/B	NA		NA		NA		NA	
M1	MW105	10/3/2007	NA		NA		NA		NA		120		NA		NA		NA		NA	
M1	MW105	4/29/2008	NA		NA		NA		NA		93		NA		NA		NA		NA	

**Summary of Historical Analytical Results for Indicator Parameters in Groundwater**  
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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese			
			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150			
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	NS		
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	MW106	5/22/1981	NA		NA		NA		NA		NA		68	U	NA		NA		5.5	U	186	
M1	MW106	8/2/1991	NA		NA		230		NA		NA		56.8		NA		NA		9.02	4.01	U	38.8
M1	MW106	4/28/1998	NA		NA		NA		NA		NA		NA		NA		NA		0.35	U	152	
M1	MW106	7/13/1998	0.02	U	316		1.25		50	U	NA		NA		NA		NA		36.5	4		0.1
M1	MW106	11/3/1999	NA		NA		NA		NA		NA		104		NA		NA		NA	3	U	608
M1	MW106	5/24/2000	NA		NA		NA		NA		NA		67.9		NA		NA		NA		NA	
M1	MW106	10/27/2000	NA		NA		NA		NA		NA		66.2		NA		NA		NA		NA	
M1	MW106	10/29/2001	NA		NA		NA		NA		NA		73		NA		NA		NA		NA	
M1	MW106	10/24/2002	NA		NA		NA		NA		NA		73		NA		NA		NA		NA	
M1	MW106	10/21/2003	0.05	U	410		0.52		NA		0.017	J	NA		0.1	U/R	NA		73	J	1	U
M1	MW106	10/18/2004	NA		NA		NA		NA		NA		89		NA		NA		NA		NA	
M1	MW106	10/12/2005	NA		NA		NA		NA		NA		90		NA		NA		NA		NA	
M1	MW106	10/12/2006	NA		NA		NA		NA		NA		87		NA		NA		NA		NA	
M1	MW106	10/2/2007	NA		NA		NA		NA		NA		93		NA		NA		NA		NA	
M1	MW106-DUP	10/2/2007	NA		NA		NA		NA		NA		98		NA		NA		NA		NA	
M1	MW106	5/6/2008	NA		NA		NA		NA		NA		78		NA		NA		NA		NA	



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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese				
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l				
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150				
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS				
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M1	MW107	5/21/1981	NA		NA		NA		NA		7990		NA		NA		5.5	U	100	U	NA		100
M1	MW107	8/6/1991	NA		NA		26.7		NA		24000		NA		NA		31	4.01	U	132		NA	2.75
M1	MW107	4/28/1998	NA		NA		NA		NA		NA		NA		NA		5.8		570		NA		16
M1	MW107	7/15/1998	NA		NA		NA		NA		NA		NA		NA		5	3	443		NA		NA
M1	MW107	12/9/1998	NA		NA		NA		NA		32200		NA		NA		NA		NA		NA		NA
M1	MW107	7/8/1999	NA		NA		NA		NA		17600		NA		NA		NA		NA		NA		NA
M1	MW107	11/3/1999	NA		NA		NA		NA		34600		NA		NA		NA		NA		NA		NA
M1	MW107-DUP	11/3/1999	NA		NA		NA		NA		48600		NA		NA		NA		NA		NA		NA
M1	MW107	5/24/2000	NA		NA		NA		NA		33900		NA		NA		NA		NA		NA		NA
M1	MW107-DUP	5/24/2000	NA		NA		NA		NA		31500		NA		NA		NA		NA		NA		NA
M1	MW107	10/25/2000	NA		NA		NA		NA		33200		NA		NA		NA		NA		NA		NA
M1	MW107-DUP	10/25/2000	NA		NA		NA		NA		32500		NA		NA		NA		NA		NA		NA
M1	MW107	5/22/2001	NA		NA		NA		NA		22400		NA		NA		NA		NA		NA		NA
M1	MW107-DUP	5/22/2001	NA		NA		NA		NA		18400		NA		NA		NA		NA		NA		NA
M1	MW107	10/26/2001	NA		NA		NA		NA		29000		NA		NA		NA		NA		NA		NA
M1	MW107-DUP	10/26/2001	NA		NA		NA		NA		13000		NA		NA		NA		NA		NA		NA
M1	MW107	5/2/2002	NA		NA		NA		NA		35000		NA		NA		NA		NA		NA		NA
M1	MW107	10/25/2002	NA		NA		NA		NA		35000		NA		NA		NA		NA		NA		NA
M1	MW107-DUP	10/25/2002	NA		NA		NA		NA		230		NA		NA		NA		NA		NA		NA
M1	MW107	5/19/2003	NA		NA		NA		NA		35000	J	NA		NA		NA		NA		NA		NA
M1	MW107-DUP	5/19/2003	NA		NA		NA		NA		57000	J	NA		NA		NA		NA		NA		NA
M1	MW107	10/21/2003	0.6		12000		44		0.009	J	NA		13	R	NA		38000	J	5.6		75		100
M1	MW107-DUP	10/21/2003	0.61		11000		46		0.009	J	NA		12	R	NA		35000	J	6.5		100		41
M1	MW107	5/17/2004	NA		NA		NA		NA		45000		NA		NA		NA		NA		NA		NA
M1	MW107-DUP	5/17/2004	NA		NA		NA		NA		31000		NA		NA		NA		NA		NA		NA
M1	MW107	10/18/2004	NA		NA		NA		NA		34000		NA		NA		NA		NA		NA		NA
M1	MW107-DUP	10/18/2004	NA		NA		NA		NA		31000		NA		NA		NA		NA		NA		NA
M1	MW107	7/12/2005	NA		NA		NA		NA		36000	R	NA		NA		NA		NA		NA		NA
M1	MW107	10/13/2005	NA		NA		NA		NA		35000		NA		NA		NA		NA		NA		NA
M1	MW107	4/28/2006	NA		NA		NA		NA		24000		NA		NA		NA		NA		NA		NA
M1	MW107	10/16/2006	NA		NA		NA		NA		53000		NA		NA		NA		NA		NA		NA
M1	MW107	4/18/2007	NA		NA		NA		NA		26000		NA		NA		NA		NA		NA		NA
M1	MW107	10/4/2007	NA		NA		NA		NA		38000		NA		NA		NA		NA		NA		NA
M1	MW107	4/30/2008	0		0		NA		NA		21000		NA		NA		NA		NA		NA		NA

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	MW201	7/18/1988	NA		NA		NA		NA		1.79		NA		NA		0.35		314	
M1	MW201	8/2/1991	NA		NA		10.3		NA		28.1		NA		NA		4.01		38.8	
M1	MW201	7/15/1998	NA		NA		NA		NA		NA		NA		NA		5		100	
M1	MW201	11/3/1999	NA		NA		NA		NA		5	U	NA		NA		3	U	100	U
M1	MW201	10/30/2000	NA		NA		NA		NA		5	U	NA		NA		NA		NA	
M1	MW201	10/29/2001	NA		NA		NA		NA		9.2		NA		NA		NA		NA	
M1	MW201	10/24/2002	NA		NA		NA		NA		19		NA		NA		NA		NA	
M1	MW201	10/22/2003	0.37		160		0.34		0.02	U	10	J	2.6		1.3		14		NA	
M1	MW201	10/18/2004	NA		NA		NA		NA		16		NA		NA		NA		90	
M1	MW201	10/13/2005	NA		NA		NA		NA		23		NA		NA		NA		50	U
M1	MW201	10/17/2006	NA		NA		NA		NA		11		NA		NA		NA		NA	
M1	MW201	10/4/2007	NA		NA		NA		NA		22	/B	NA		NA		NA		NA	
M1	MW231	7/21/1988	NA		NA		NA		NA		3600		NA		NA		NA		55.9	
M1	MW231	7/25/1988	NA		NA		NA		NA		NA		NA		NA		0.35		NA	
M1	MW231	8/6/1991	NA		NA		39.1		NA		9500		NA		NA		4.01	U	59.3	
M1	MW231	7/13/1998	1.35		7640		20.4		107		750		9.8		24000		4		0.1	U
M1	MW231	7/8/1999	NA		NA		NA		NA		18800		NA		NA		5	U	3	U
M1	MW231	11/3/1999	NA		NA		NA		NA		29200		NA		NA		NA		298	
M1	MW231	5/24/2000	NA		NA		NA		NA		27400		NA		NA		NA		NA	
M1	MW231-DUP	5/24/2000	NA		NA		NA		NA		26700		NA		NA		NA		NA	
M1	MW231	10/30/2000	NA		NA		NA		NA		26600		NA		NA		NA		NA	
M1	MW231-DUP	10/30/2000	NA		NA		NA		NA		26800		NA		NA		NA		NA	
M1	MW231	5/23/2001	NA		NA		NA		NA		12900		NA		NA		NA		NA	
M1	MW231-DUP	5/23/2001	NA		NA		NA		NA		12100		NA		NA		NA		NA	
M1	MW231	10/26/2001	NA		NA		NA		NA		27000		NA		NA		NA		NA	
M1	MW231-DUP	10/26/2001	NA		NA		NA		NA		26000		NA		NA		NA		NA	
M1	MW231	5/2/2002	NA		NA		NA		NA		38000		NA		NA		NA		NA	
M1	MW231	10/24/2002	NA		NA		NA		NA		180		NA		NA		NA		NA	
M1	MW231	5/19/2003	NA		NA		NA		NA		27000	J	NA		NA		NA		NA	
M1	MW231	10/22/2003	0.54		7900		9		0.008	J	NA		8.6	R	30000	J	5	U	28	
M1	MW231	5/18/2004	NA		NA		NA		NA		32000		NA		NA		NA		68	
M1	MW231	10/18/2004	NA		NA		NA		NA		31000		NA		NA		NA		NA	
M1	MW231	7/12/2005	NA		NA		NA		NA		36000	R	NA		NA		NA		NA	
M1	MW231	10/14/2005	NA		NA		NA		NA		31000		NA		NA		NA		NA	
M1	MW231	4/28/2006	NA		NA		NA		NA		34000		NA		NA		NA		NA	
M1	MW231	10/16/2006	NA		NA		NA		NA		41000		NA		NA		NA		NA	
M1	MW231	4/18/2007	NA		NA		NA		NA		33000		NA		NA		NA		NA	
M1	MW231-DUP	4/18/2007	NA		NA		NA		NA		32000		NA		NA		NA		NA	
M1	MW231	10/4/2007	NA		NA		NA		NA		38000		NA		NA		NA		NA	
M1	MW231	4/30/2008	0		0		NA		NA		32000		NA		NA		NA		NA	

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Unit			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	MW347	8/23/1991	NA		NA		37.2		NA		NA		158		NA		7.41		38.8	
M1	MW347	7/13/1998	0.02	U	300		1.87		107		NA		160		0.1	U	1	U	305	
M1	MW347	7/24/1998	NA		NA		NA		NA		NA		NA		NA		NA		NA	
M1	MW347	5/24/2000	NA		NA		NA		NA		NA		107		NA		NA		NA	
M1	MW347	10/27/2000	NA		NA		NA		NA		NA		117		NA		NA		NA	
M1	MW347	5/23/2001	NA		NA		NA		NA		NA		184		NA		NA		NA	
M1	MW347	10/26/2001	NA		NA		NA		NA		NA		250		NA		NA		NA	
M1	MW347	5/2/2002	NA		NA		NA		NA		NA		190		NA		NA		NA	
M1	MW347	10/24/2002	NA		NA		NA		NA		NA		150		NA		NA		NA	
M1	MW347	5/19/2003	NA		NA		NA		NA		NA		150		NA		NA		NA	
M1	MW347	10/22/2003	0.05	U	390		0.2	U			0.02	U	350		J		1	U	0.44	
M1	MW347	5/18/2004	NA		NA		NA		NA		NA		80		NA		NA		NA	
M1	MW347	10/18/2004	NA		NA		NA		NA		NA		180		NA		NA		NA	
M1	MW347	7/12/2005	NA		NA		NA		NA		NA		140		NA		NA		NA	
M1	MW347	10/13/2005	NA		NA		NA		NA		NA		290		NA		NA		NA	
M1	MW347	4/28/2006	NA		NA		NA		NA		NA		85		NA		NA		NA	
M1	MW347	10/16/2006	NA		NA		NA		NA		NA		200		NA		NA		NA	
M1	MW347	4/19/2007	NA		NA		NA		NA		NA		150		NA		NA		NA	
M1	MW347	10/4/2007	NA		NA		NA		NA		NA		300		NA		NA		NA	
M1	MW347	4/30/2008	NA		NA		NA		NA		NA		120		NA		NA		NA	

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese			
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l			
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150			
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS			
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	MW351	8/23/1991	NA		NA		15.9		NA		NA		125		NA		8.93		NA		180	
M1	MW351	7/15/1998	0.381		354		5.8		102		940		103	2	U	0.1	U	20.8	5	U	3	U
M1	MW351	7/24/1998	NA		NA		NA		NA		NA		NA	2		NA		NA	NA	NA	NA	NA
M1	MW351	7/8/1999	NA		NA		NA		NA		NA		457		NA		NA	NA	NA	NA	NA	NA
M1	MW351	11/3/1999	NA		NA		NA		NA		NA		5	U	NA		NA	NA	NA	NA	NA	NA
M1	MW351	5/24/2000	NA		NA		NA		NA		NA		366		NA		NA	NA	NA	NA	NA	NA
M1	MW351	10/27/2000	NA		NA		NA		NA		NA		16.4		NA		NA	NA	NA	NA	NA	NA
M1	MW351	5/23/2001	NA		NA		NA		NA		NA		316		NA		NA	NA	NA	NA	NA	NA
M1	MW351	10/26/2001	NA		NA		NA		NA		NA		44		NA		NA	NA	NA	NA	NA	NA
M1	MW351	5/2/2002	NA		NA		NA		NA		NA		540		NA		NA	NA	NA	NA	NA	NA
M1	MW351	10/24/2002	NA		NA		NA		NA		NA		21		NA		NA	NA	NA	NA	NA	NA
M1	MW351	5/19/2003	NA		NA		NA		NA		NA		470	J		NA	NA	NA	NA	NA	NA	NA
M1	MW351	10/20/2003	0.26		430		1.7	NA	0.02	U		0.1	U	78	1	J	2.5	5.4	NA	NA	480	92
M1	MW351	5/17/2004	NA		NA		NA		NA		NA		480		NA		NA	NA	NA	NA	NA	NA
M1	MW351	10/19/2004	NA		NA		NA		NA		NA		50		NA		NA	NA	NA	NA	NA	NA
M1	MW351	7/11/2005	NA		NA		NA		NA		NA		170	R	NA		NA	NA	NA	NA	NA	NA
M1	MW351	10/13/2005	NA		NA		NA		NA		NA		59		NA		NA	NA	NA	NA	NA	NA
M1	MW351	4/28/2006	NA		NA		NA		NA		NA		580		NA		NA	NA	NA	NA	NA	NA
M1	MW351	10/16/2006	NA		NA		NA		NA		NA		280		NA		NA	NA	NA	NA	NA	NA
M1	MW351	4/19/2007	NA		NA		NA		NA		NA		280	/B	NA		NA	NA	NA	NA	NA	NA
M1	MW351	10/8/2007	NA		NA		NA		NA		NA		120		NA		NA	NA	NA	NA	NA	NA
M1	MW351	4/30/2008	NA		NA		NA		NA		NA		360		NA		NA	NA	NA	NA	NA	NA
M1	MW640	7/8/1999	NA		NA		NA		NA		NA		481		NA		NA	NA	NA	NA	NA	NA
M1	MW640	11/3/1999	NA		NA		NA		NA		NA		2420		NA		NA	NA	NA	NA	NA	NA
M1	MW640	5/24/2000	NA		NA		NA		NA		NA		2560		NA		NA	NA	NA	NA	NA	NA
M1	MW640	10/27/2000	NA		NA		NA		NA		NA		2670		NA		NA	NA	NA	NA	NA	NA
M1	MW640	5/23/2001	NA		NA		NA		NA		NA		3880		NA		NA	NA	NA	NA	NA	NA
M1	MW640	10/26/2001	NA		NA		NA		NA		NA		5900		NA		NA	NA	NA	NA	NA	NA
M1	MW640	5/2/2002	NA		NA		NA		NA		NA		3000		NA		NA	NA	NA	NA	NA	NA
M1	MW640	10/24/2002	NA		NA		NA		NA		NA		2700		NA		NA	NA	NA	NA	NA	NA
M1	MW640	5/20/2003	NA		NA		NA		NA		NA		3100		NA		NA	NA	NA	NA	NA	NA
M1	MW640	10/22/2003	0.05	U	510		1.1		0.02	U		0.042	J/R	2100	J	0.6	J	3.5	65	NA	2400	2400
M1	MW640	5/17/2004	NA		NA		NA		NA		NA		2200		NA		NA	NA	NA	NA	NA	NA
M1	MW640	10/19/2004	NA		NA		NA		NA		NA		3000		NA		NA	NA	NA	NA	NA	NA
M1	MW640	7/12/2005	NA		NA		NA		NA		NA		4300		NA		NA	NA	NA	NA	NA	NA
M1	MW640	10/12/2005	NA		NA		NA		NA		NA		3100		NA		NA	NA	NA	NA	NA	NA
M1	MW640	4/28/2006	NA		NA		NA		NA		NA		4400		NA		NA	NA	NA	NA	NA	NA
M1	MW640	10/12/2006	NA		NA		NA		NA		NA		6100		NA		NA	NA	NA	NA	NA	NA
M1	MW640	4/23/2007	NA		NA		NA		NA		NA		2900		NA		NA	NA	NA	NA	NA	NA
M1	MW640	10/2/2007	NA		NA		NA		NA		NA		1500		NA		NA	NA	NA	NA	NA	NA
M1	MW640	4/30/2008	NA		NA		NA		NA		NA		4100		NA		NA	NA	NA	NA	NA	NA

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	MW641	7/8/1999	NA		NA		NA		NA		985		NA		NA		NA		NA	
M1	MW641	11/2/1999	NA		NA		NA		NA		1890		NA		NA		NA		NA	
M1	MW641	5/24/2000	NA		NA		NA		NA		1700		NA		NA		NA		NA	
M1	MW641	10/30/2000	NA		NA		NA		NA		1880		NA		NA		NA		NA	
M1	MW641	5/23/2001	NA		NA		NA		NA		1680		NA		NA		NA		NA	
M1	MW641	10/26/2001	NA		NA		NA		NA		1500	J	NA		NA		NA		NA	
M1	MW641	5/2/2002	NA		NA		NA		NA		960		NA		NA		NA		NA	
M1	MW641	10/24/2002	NA		NA		NA		NA		1800		NA		NA		NA		NA	
M1	MW641	5/16/2003	NA		NA		NA		NA		1500		NA		NA		NA		NA	
M1	MW641	10/22/2003	0.05	U	550		0.2	U	0.048	J/R	1100	J	2.3	0.95	4.2	NA	1700	1500	NA	
M1	MW641	5/18/2004	NA		NA		NA		NA		760		NA		NA		NA		NA	
M1	MW641	10/19/2004	NA		NA		NA		NA		880		NA		NA		NA		NA	
M1	MW641	7/12/2005	NA		NA		NA		NA		560	R	NA		NA		NA		NA	
M1	MW641-DUP	7/12/2005	NA		NA		NA		NA		590		NA		NA		NA		NA	
M1	MW641	10/12/2005	NA		NA		NA		NA		1300		NA		NA		NA		NA	
M1	MW641-DUP	10/12/2005	NA		NA		NA		NA		1200		NA		NA		NA		NA	
M1	MW641	4/28/2006	NA		NA		NA		NA		670		NA		NA		NA		NA	
M1	MW641-DUP	4/28/2006	NA		NA		NA		NA		680		NA		NA		NA		NA	
M1	MW641	10/12/2006	NA		NA		NA		NA		880		NA		NA		NA		NA	
M1	MW641-DUP	10/12/2006	NA		NA		NA		NA		870		NA		NA		NA		NA	
M1	MW641	4/20/2007	NA		NA		NA		NA		900		NA		NA		NA		NA	
M1	MW641	10/2/2007	NA		NA		NA		NA		990		NA		NA		NA		NA	
M1	MW641	4/30/2008	NA		NA		NA		NA		940		NA		NA		NA		NA	
M1	MW641-DUP	4/30/2008	NA		NA		NA		NA		930		NA		NA		NA		NA	

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Compounds			o-Phosphate		Alkalinity		Ammonia		Nitrate/Nitrite		Nitrate (NO2)		Carbon Dioxide		Nitrate (NO3)		Methane		Sulfate (SO4)		Sulfide		TKN		TOC		Antimony		Cadmium		Iron		Diss. Iron		Manganese	
Unit			mg/l		mg/l		mg/l		ug/l		mg/l		mg/l		mg/l		ug/l		mg/l		mg/l		mg/l		mg/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Risk Based RG			NS		NS		NS		10000		1000		NS		NS		NS		400		NS		NS		NS		6		5		500		5000		150	
Surface Water RG			NS		NS		NS		NS		NS		NS		NS		NS		500		NS		NS		NS		NS		NS		NS		NS		NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M1	MW642	7/8/1999	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	11/2/1999	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	5/24/2000	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	10/30/2000	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	5/23/2001	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	10/19/2001	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	10/26/2001	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	5/2/2002	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	10/24/2002	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	5/19/2003	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	10/22/2003	0.045	J	510		0.11	J		0.02	U	NA		0.1	U/R	NA		640	J	1	U	0.66		3.1	NA	NA		NA		610		50	U	NA		
M1	MW642	5/18/2004	NA		NA		NA		NA		NA		NA		NA		NA		600		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	7/11/2005	NA		NA		NA		NA		NA		NA		NA		NA		390	R	NA		NA		NA		NA		NA		NA		NA			
M1	MW642	10/12/2005	NA		NA		NA		NA		NA		NA		NA		NA		410		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	4/28/2006	NA		NA		NA		NA		NA		NA		NA		NA		400		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	10/16/2006	NA		NA		NA		NA		NA		NA		NA		NA		440		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	4/19/2007	NA		NA		NA		NA		NA		NA		NA		NA		450	/B	NA		NA		NA		NA		NA		NA		NA			
M1	MW642	10/8/2007	NA		NA		NA		NA		NA		NA		NA		NA		450		NA		NA		NA		NA		NA		NA		NA			
M1	MW642	5/7/2008	NA		NA		NA		NA		NA		NA		NA		NA		380		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	5/22/2001	NA		NA		NA		NA		NA		NA		NA		NA		231		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	10/26/2001	NA		NA		NA		NA		NA		NA		NA		NA		350		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	5/2/2002	NA		NA		NA		NA		NA		NA		NA		NA		270		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	10/25/2002	NA		NA		NA		NA		NA		NA		NA		NA		18		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	5/15/2003	NA		NA		NA		NA		NA		NA		NA		NA		270		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	10/20/2003	0.05	U	430		0.2	U		0.02	U	NA		0.1	U	NA		180		1	U	0.62		3.8	NA	NA		NA		950		850		NA		
M1	MW643	5/18/2004	NA		NA		NA		NA		NA		NA		NA		NA		140		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	10/19/2004	NA		NA		NA		NA		NA		NA		NA		NA		120		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	7/11/2005	NA		NA		NA		NA		NA		NA		NA		NA		150	R	NA		NA		NA		NA		NA		NA		NA			
M1	MW643	10/12/2005	NA		NA		NA		NA		NA		NA		NA		NA		210		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	4/27/2006	NA		NA		NA		NA		NA		NA		NA		NA		340		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	10/16/2006	NA		NA		NA		NA		NA		NA		NA		NA		270		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	4/18/2007	NA		NA		NA		NA		NA		NA		NA		NA		270		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	10/3/2007	NA		NA		NA		NA		NA		NA		NA		NA		150		NA		NA		NA		NA		NA		NA		NA			
M1	MW643	4/29/2008	NA		NA		NA		NA		NA		NA		NA		NA		130		NA		NA		NA		NA		NA		NA		NA			



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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	MW644	5/22/2001	NA		NA		NA		NA		174		NA		NA		NA		NA	
M1	MW644	10/26/2001	NA		NA		NA		NA		390		NA		NA		NA		NA	
M1	MW644	5/2/2002	NA		NA		NA		NA		370		NA		NA		NA		NA	
M1	MW644-DUP	5/2/2002	NA		NA		NA		NA		370		NA		NA		NA		NA	
M1	MW644	10/25/2002	NA		NA		NA		NA		320		NA		NA		NA		NA	
M1	MW644	5/16/2003	NA		NA		NA		NA		310		NA		NA		NA		NA	
M1	MW644	10/20/2003	0.05	U	350	0.13	J	NA	0.02	U	330	1	U	0.42	2.3	NA	50	U	100	U
M1	MW644	5/18/2004	NA		NA		NA		NA		340		NA		NA		NA		NA	
M1	MW644	10/19/2004	NA		NA		NA		NA		340		NA		NA		NA		NA	
M1	MW644	7/11/2005	NA		NA		NA		NA		210	R	NA		NA		NA		NA	
M1	MW644	10/12/2005	NA		NA		NA		NA		200		NA		NA		NA		NA	
M1	MW644	4/27/2006	NA		NA		NA		NA		320		NA		NA		NA		NA	
M1	MW644	10/16/2006	NA		NA		NA		NA		290		NA		NA		NA		NA	
M1	MW644	4/18/2007	NA		NA		NA		NA		300	/B	NA		NA		NA		NA	
M1	MW644	10/3/2007	NA		NA		NA		NA		310		NA		NA		NA		NA	
M1	MW644	4/29/2008	NA		NA		NA		NA		240		NA		NA		NA		NA	
M1	MW644-DUP	4/29/2008	NA		NA		NA		NA		240		NA		NA		NA		NA	
M1	MW645	5/22/2001	NA		NA		NA		NA		179		NA		NA		NA		NA	
M1	MW645	10/26/2001	NA		NA		NA		NA		180		NA		NA		NA		NA	
M1	MW645	5/2/2002	NA		NA		NA		NA		400		NA		NA		NA		NA	
M1	MW645-DUP	5/2/2002	NA		NA		NA		NA		180		NA		NA		NA		NA	
M1	MW645	5/15/2003	NA		NA		NA		NA		190		NA		NA		NA		NA	
M1	MW645	10/20/2003	0.05	U	380	0.2	U	NA	0.02	U	240	1	U	0.33	2	NA	250	U	250	U
M1	MW645	5/18/2004	NA		NA		NA		NA		210		NA		NA		NA		NA	
M1	MW645	10/19/2004	NA		NA		NA		NA		190		NA		NA		NA		NA	
M1	MW645	7/11/2005	NA		NA		NA		NA		140	R	NA		NA		NA		NA	
M1	MW645	10/12/2005	NA		NA		NA		NA		150		NA		NA		NA		NA	
M1	MW645	4/27/2006	NA		NA		NA		NA		210		NA		NA		NA		NA	
M1	MW645	10/16/2006	NA		NA		NA		NA		170		NA		NA		NA		NA	
M1	MW645	4/18/2007	NA		NA		NA		NA		150	/B	NA		NA		NA		NA	
M1	MW645	10/3/2007	NA		NA		NA		NA		150		NA		NA		NA		NA	
M1	MW645	4/29/2008	NA		NA		NA		NA		94		NA		NA		NA		NA	

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Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	MW646	5/22/2001	NA		NA		NA		NA		216	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	10/26/2001	NA		NA		NA		NA		220	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	5/2/2002	NA		NA		NA		NA		250	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	10/25/2002	NA		NA		NA		NA		180	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	5/15/2003	NA		NA		NA		NA		80	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	10/20/2003	0.05	U	260	U	0.2	U	0.02	U	240	1	U	0.43	2.1	NA	50	U	250	U
M1	MW646	5/18/2004	NA		NA		NA		NA		180	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	10/19/2004	NA		NA		NA		NA		190	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	7/11/2005	NA		NA		NA		NA		150	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	10/12/2005	NA		NA		NA		NA		150	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	4/27/2006	NA		NA		NA		NA		200	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	10/16/2006	NA		NA		NA		NA		180	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	4/18/2007	NA		NA		NA		NA		170	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	10/3/2007	NA		NA		NA		NA		150	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW646	4/29/2008	NA		NA		NA		NA		140	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	5/23/2001	NA		NA		NA		NA		173	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	10/26/2001	NA		NA		NA		NA		240	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	5/2/2002	NA		NA		NA		NA		230	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647-DUP	5/2/2002	NA		NA		NA		NA		240	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	10/25/2002	NA		NA		NA		NA		160	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	5/19/2003	NA		NA		NA		NA		250	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	10/21/2003	0.05	U	300	U	0.28	U	0.02	U	320	J	1.4	0.66	1.1	NA	250	U	250	U
M1	MW647	5/17/2004	NA		NA		NA		NA		250	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	10/18/2004	NA		NA		NA		NA		230	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	7/12/2005	NA		NA		NA		NA		270	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647-DUP	7/12/2005	NA		NA		NA		NA		230	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	10/12/2005	NA		NA		NA		NA		240	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647-DUP	10/12/2005	NA		NA		NA		NA		230	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	4/28/2006	NA		NA		NA		NA		220	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647-DUP	4/28/2006	NA		NA		NA		NA		250	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	10/18/2006	NA		NA		NA		NA		270	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647-DUP	10/18/2006	NA		NA		NA		NA		240	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	4/20/2007	NA		NA		NA		NA		290	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	10/8/2007	NA		NA		NA		NA		240	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW647	4/30/2008	NA		NA		NA		NA		210	NA	NA	NA	NA	NA	NA	NA	NA	

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Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	MW648	5/22/2001	NA		NA		NA		NA		32.7	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	10/26/2001	NA		NA		NA		NA		45	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	5/22/2002	NA		NA		NA		NA		29	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	10/25/2002	NA		NA		NA		NA		28	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	5/19/2003	NA		NA		NA		NA		50	J	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	5/17/2004	NA		NA		NA	0.02 U	NA	0.072 J	34	1 U	0.41	1	NA	NA	190	50 U	NA	
M1	MW648	10/18/2004	NA		NA		NA		NA		47	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	7/12/2005	NA		NA		NA		NA		25	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	10/12/2005	NA		NA		NA		NA		33	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	4/28/2006	NA		NA		NA		NA		28	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	10/12/2006	NA		NA		NA		NA		34	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	4/23/2007	NA		NA		NA		NA		24	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	10/3/2007	NA		NA		NA		NA		30	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW648	4/30/2008	NA		NA		NA		NA		120	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	5/22/2001	NA		NA		NA		NA		25	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649-DUP	5/22/2001	NA		NA		NA		NA		120	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	10/29/2001	NA		NA		NA		NA		101	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649-DUP	10/29/2001	NA		NA		NA		NA		170	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	5/2/2002	NA		NA		NA		NA		170	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	10/24/2002	NA		NA		NA		NA		100	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	5/20/2003	NA		NA		NA		NA		210	J	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	10/22/2003	0.05 U	340	0.17 J	NA	0.02 U	NA	0.14 R	NA	510 J	1 U	0.22	1.5	NA	NA	50 U	250 U	NA	
M1	MW649-DUP	10/22/2003	0.05 U	360	0.19 J	NA	0.02 U	NA	0.27 R	NA	500 J	0.9 J	0.22	1.5	NA	NA	50 U	250 U	NA	
M1	MW649	5/18/2004	NA		NA		NA		NA		160	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	10/18/2004	NA		NA		NA		NA		300	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649-DUP	10/18/2004	NA		NA		NA		NA		300	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	7/11/2005	NA		NA		NA		NA		230	R	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	10/13/2005	NA		NA		NA		NA		320	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	4/27/2006	NA		NA		NA		NA		180	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	10/17/2006	NA		NA		NA		NA		250	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	4/18/2007	NA		NA		NA		NA		110	/B	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	10/8/2007	NA		NA		NA		NA		220	NA	NA	NA	NA	NA	NA	NA	NA	
M1	MW649	4/29/2008	NA		NA		NA		NA		100	NA	NA	NA	NA	NA	NA	NA	NA	

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Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	SW701	5/24/2000	NA		NA		NA		NA		495		NA		NA		NA		NA	
M1	SW701	10/27/2000	NA		NA		NA		NA		404		NA		NA		NA		NA	
M1	SW701	5/22/2001	NA		NA		NA		NA		211		NA		NA		NA		NA	
M1	SW701	5/2/2002	NA		NA		NA		NA		150		NA		NA		NA		NA	
M1	SW701	5/7/2003	NA		NA		NA		NA		480	J	NA		NA		NA		NA	
M1	SW701	10/9/2003	NA		NA		NA		NA		160		NA		NA		NA		NA	
M1	SW701-DUP	10/9/2003	NA		NA		NA		NA		160		NA		NA		NA		NA	
M1	SW701	5/10/2004	NA		NA		NA		NA		140		NA		NA		NA		NA	
M1	SW701-DUP	5/10/2004	NA		NA		NA		NA		130		NA		NA		NA		NA	
M1	SW701	10/12/2004	NA		NA		NA		NA		310		NA		NA		NA		NA	
M1	SW701	4/28/2006	NA		NA		NA		NA		260		NA		NA		NA		NA	
M1	SW701	10/17/2006	NA		NA		NA		NA		200		NA		NA		NA		NA	
M1	SW701	4/19/2007	NA		NA		NA		NA		100		NA		NA		NA		NA	
M1	SW701	4/29/2008	NA		NA		NA		NA		89		NA		NA		NA		NA	
M1	SW702	5/24/2000	NA		NA		NA		NA		529		NA		NA		NA		NA	
M1	SW702	10/27/2000	NA		NA		NA		NA		412		NA		NA		NA		NA	
M1	SW702	5/10/2001	NA		NA		NA		NA		150		NA		NA		NA		NA	
M1	SW702	5/22/2001	NA		NA		NA		NA		161		NA		NA		NA		NA	
M1	SW702	5/2/2002	NA		NA		NA		NA		140		NA		NA		NA		NA	
M1	SW702	10/9/2003	NA		NA		NA		NA		190		NA		NA		NA		NA	
M1	SW702	10/12/2004	NA		NA		NA		NA		170		NA		NA		NA		NA	
M1	SW702	4/28/2006	NA		NA		NA		NA		250		NA		NA		NA		NA	
M1	SW702	10/17/2006	NA		NA		NA		NA		100		NA		NA		NA		NA	
M1	SW702	4/19/2007	NA		NA		NA		NA		130		NA		NA		NA		NA	
M1	SW702	10/5/2007	NA		NA		NA		NA		300		NA		NA		NA		NA	
M1	SW702	4/29/2008	NA		NA		NA		NA		82		NA		NA		NA		NA	
M1	SW703	5/24/2000	NA		NA		NA		NA		329		NA		NA		NA		NA	
M1	SW703	10/27/2000	NA		NA		NA		NA		130		NA		NA		NA		NA	
M1	SW703	5/22/2001	NA		NA		NA		NA		522		NA		NA		NA		NA	
M1	SW703	5/2/2002	NA		NA		NA		NA		130		NA		NA		NA		NA	
M1	SW703	5/8/2003	NA		NA		NA		NA		66	J	NA		NA		NA		NA	
M1	SW703	5/11/2004	NA		NA		NA		NA		100		NA		NA		NA		NA	
M1	SW703	4/28/2006	NA		NA		NA		NA		320		NA		NA		NA		NA	
M1	SW703	10/17/2006	NA		NA		NA		NA		180		NA		NA		NA		NA	
M1	SW703	4/19/2007	NA		NA		NA		NA		2.4	B/B	NA		NA		NA		NA	
M1	SW703	4/29/2008	NA		NA		NA		NA		75		NA		NA		NA		NA	

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Compounds			Orthophosphate		Alkalinity		Ammonia		Nitrate/Nitrite		Nitrate (NO2)		Carbon Dioxide		Nitrate (NO3)		Methane		Sulfate (SO4)		Sulfide		TKN		TOC		Antimony		Cadmium		Iron		Diss. Iron		Manganese	
Unit			mg/l		mg/l		mg/l		ug/l		mg/l		mg/l		ug/l		ug/l		mg/l		mg/l		mg/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Risk Based RG			NS		NS		NS		10000		1000		NS		NS		NS		400		NS		NS		NS		6		5		500		5000		150	
Surface Water RG			NS		NS		NS		NS		NS		NS		NS		NS		500		NS		NS		NS		NS		NS		NS		NS		NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	SW704	10/30/2000	NA		NA		NA		NA		NA		NA		NA		NA		77.1		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW704	5/22/2001	NA		NA		NA		NA		NA		NA		NA		NA		21.5		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW704	5/2/2002	NA		NA		NA		NA		NA		NA		NA		NA		91		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW704	5/8/2003	NA		NA		NA		NA		NA		NA		NA		NA		31	J	NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW704	10/9/2003	NA		NA		NA		NA		NA		NA		NA		NA		100		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW704	5/11/2004	NA		NA		NA		NA		NA		NA		NA		NA		64		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW704	10/12/2004	NA		NA		NA		NA		NA		NA		NA		NA		480		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW704	4/28/2006	NA		NA		NA		NA		NA		NA		NA		NA		90		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	5/25/2000	NA		NA		NA		NA		NA		NA		NA		NA		87.9		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	10/30/2000	NA		NA		NA		NA		NA		NA		NA		NA		97.1		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	5/22/2001	NA		NA		NA		NA		NA		NA		NA		NA		69.3		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	10/24/2002	NA		NA		NA		NA		NA		NA		NA		NA		100		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	5/8/2003	NA		NA		NA		NA		NA		NA		NA		NA		110	J	NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	10/9/2003	NA		NA		NA		NA		NA		NA		NA		NA		100		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	5/11/2004	NA		NA		NA		NA		NA		NA		NA		NA		92		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	10/12/2004	NA		NA		NA		NA		NA		NA		NA		NA		140		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705-DUP	10/12/2004	NA		NA		NA		NA		NA		NA		NA		NA		140		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	7/12/2005	NA		NA		NA		NA		NA		NA		NA		NA		87	R	NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	4/28/2006	NA		NA		NA		NA		NA		NA		NA		NA		95		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	10/18/2006	NA		NA		NA		NA		NA		NA		NA		NA		67		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	4/20/2007	NA		NA		NA		NA		NA		NA		NA		NA		95	/B	NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	10/8/2007	NA		NA		NA		NA		NA		NA		NA		NA		130		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705-DUP	10/8/2007	NA		NA		NA		NA		NA		NA		NA		NA		130		NA		NA		NA		NA		NA		NA		NA		NA	
M1	SW705	4/29/2008	NA		NA		NA		NA		NA		NA		NA		NA		62		NA		NA		NA		NA		NA		NA		NA		NA	

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese			
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l			
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150			
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS			
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	SW706	5/25/2000	NA		NA		NA		NA		92.8		NA		NA		NA		NA		NA	
M1	SW706	10/27/2000	NA		NA		NA		NA		127		NA		NA		NA		NA		NA	
M1	SW706	5/22/2001	NA		NA		NA		NA		78.5		NA		NA		NA		NA		NA	
M1	SW706	5/2/2002	NA		NA		NA		NA		85		NA		NA		NA		NA		NA	
M1	SW706	10/24/2002	NA		NA		NA		NA		19		NA		NA		NA		NA		NA	
M1	SW706	5/7/2003	NA		NA		NA		NA		88	J	NA		NA		NA		NA		NA	
M1	SW706	5/11/2004	NA		NA		NA		NA		99		NA		NA		NA		NA		NA	
M1	SW706	10/12/2004	NA		NA		NA		NA		120		NA		NA		NA		NA		NA	
M1	SW706	7/12/2005	NA		NA		NA		NA		78	R	NA		NA		NA		NA		NA	
M1	SW706-DUP	7/12/2005	NA		NA		NA		NA		85	R	NA		NA		NA		NA		NA	
M1	SW706	10/14/2005	NA		NA		NA		NA		35		NA		NA		NA		NA		NA	
M1	SW706-DUP	10/14/2005	NA		NA		NA		NA		33		NA		NA		NA		NA		NA	
M1	SW706	4/28/2006	NA		NA		NA		NA		100		NA		NA		NA		NA		NA	
M1	SW706-DUP	4/28/2006	NA		NA		NA		NA		110		NA		NA		NA		NA		NA	
M1	SW706	10/19/2006	NA		NA		NA		NA		65		NA		NA		NA		NA		NA	
M1	SW706-DUP	10/19/2006	NA		NA		NA		NA		83		NA		NA		NA		NA		NA	
M1	SW706	4/19/2007	NA		NA		NA		NA		81		NA		NA		NA		NA		NA	
M1	SW706	10/5/2007	NA		NA		NA		NA		120		NA		NA		NA		NA		NA	
M1	SW706	4/29/2008	NA		NA		NA		NA		63		NA		NA		NA		NA		NA	
M1	SW707	5/25/2000	NA		NA		NA		NA		92.2		NA		NA		NA		NA		NA	
M1	SW707	10/27/2000	NA		NA		NA		NA		123		NA		NA		NA		NA		NA	
M1	SW707	5/2/2001	NA		NA		NA		NA		81.8		NA		NA		NA		NA		NA	
M1	SW707	5/2/2002	NA		NA		NA		NA		82		NA		NA		NA		NA		NA	
M1	SW707	10/24/2002	NA		NA		NA		NA		16		NA		NA		NA		NA		NA	
M1	SW707	5/7/2003	NA		NA		NA		NA		93	J	NA		NA		NA		NA		NA	
M1	SW707	10/9/2003	NA		NA		NA		NA		110		NA		NA		NA		NA		NA	
M1	SW707	5/13/2004	NA		NA		NA		NA		88		NA		NA		NA		NA		NA	
M1	SW707	10/11/2004	NA		NA		NA		NA		120		NA		NA		NA		NA		NA	
M1	SW707	7/12/2005	NA		NA		NA		NA		86	R	NA		NA		NA		NA		NA	
M1	SW707	10/14/2005	NA		NA		NA		NA		41		NA		NA		NA		NA		NA	
M1	SW707	4/28/2006	NA		NA		NA		NA		120		NA		NA		NA		NA		NA	
M1	SW707	10/17/2006	NA		NA		NA		NA		83		NA		NA		NA		NA		NA	
M1	SW707	4/19/2007	NA		NA		NA		NA		89	/B	NA		NA		NA		NA		NA	
M1	SW707-DUP	4/19/2007	NA		NA		NA		NA		110		NA		NA		NA		NA		NA	
M1	SW707	10/5/2007	NA		NA		NA		NA		120		NA		NA		NA		NA		NA	
M1	SW707	4/29/2008	NA		NA		NA		NA		63		NA		NA		NA		NA		NA	



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Compounds			c-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M1	SW708	5/25/2000	NA	NA	NA	NA	NA	NA	NA	NA	575	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	10/27/2000	NA	NA	NA	NA	NA	NA	NA	NA	124	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	5/22/2001	NA	NA	NA	NA	NA	NA	NA	NA	153	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	5/2/2002	NA	NA	NA	NA	NA	NA	NA	NA	170	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708-DUP	5/2/2002	NA	NA	NA	NA	NA	NA	NA	NA	140	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	5/7/2003	NA	NA	NA	NA	NA	NA	NA	NA	350	J	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	10/9/2003	NA	NA	NA	NA	NA	NA	NA	NA	120	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	5/11/2004	NA	NA	NA	NA	NA	NA	NA	NA	160	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	10/11/2004	NA	NA	NA	NA	NA	NA	NA	NA	120	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	4/28/2006	NA	NA	NA	NA	NA	NA	NA	NA	300	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	10/17/2006	NA	NA	NA	NA	NA	NA	NA	NA	290	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	4/19/2007	NA	NA	NA	NA	NA	NA	NA	NA	150	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	10/5/2007	NA	NA	NA	NA	NA	NA	NA	NA	310	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708	4/29/2008	NA	NA	NA	NA	NA	NA	NA	NA	120	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW708-DUP	4/29/2008	NA	NA	NA	NA	NA	NA	NA	NA	120	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW70S	5/2/2002	NA	NA	NA	NA	NA	NA	NA	NA	79	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW70S	10/9/2003	NA	NA	NA	NA	NA	NA	NA	NA	130	NA	NA	NA	NA	NA	NA	NA	NA	
M1	SW762	5/8/2003	NA	NA	NA	NA	NA	NA	NA	NA	1100	J	NA	NA	NA	NA	NA	NA	NA	
M1	SW7W	5/25/2000	NA	NA	NA	NA	NA	NA	NA	NA	83	NA	NA	NA	NA	NA	NA	NA	NA	

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M5	MW114	5/22/1981	NA		NA		NA		NA		68	U	NA		NA		5.5	U	100	U
M5	MW114	7/9/1998	0.02	U	278		1.25		50	U	NA		24		3		366		NA	
M5	MW114R	10/21/2003	0.05	U	290		0.23		NA		65		1	U	0.34		1200		1000	
M5	MW127	6/3/1981	NA		NA		NA		NA		98.2		NA		NA		7.5		100	U
M5	MW127	7/9/1998	0.056		534		2.4		127		3930		36		45.2		100		100	U
M5	MW207	7/21/1988	NA		NA		NA		NA		160		NA		NA		0.35	U	95.3	
M5	MW207	7/9/1998	0.02	U	325		1.42		2290		2360		7.1		58.5		100		100	U
M5	MW207R	10/21/2003	0.05	U	320		0.28		NA		0.02	U	NA		0.12		530		470	
M5	MW207R-DUP	10/21/2003	0.05	U	320		0.34		NA		0.02	U	NA		0.041	J	500		480	
M5	MW354	7/9/1998	0.02	U	295		1.85		50	U	1320		8.9		50		1860		NA	
M5	MW354R	10/21/2003	0.05	U	290		0.36		NA		0.02	U	NA		0.083	J	1500		1300	
M5	MW355	7/9/1998	0.02	U	351		1.9		50	U	NA		NA		21		939		NA	
M5	MW355R	10/21/2003	0.05	U	310		0.2	U	NA		0.02	U	NA		0.072	J	2700		2300	
M5	MW356	7/9/1998	0.02	U	275		1.26		50	U	550		7.1		42.5		100	U	NA	

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese						
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l						
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150						
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS						
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF					
M6	MW116	10/15/2003	0.05	U	360	0.2	U	NA	0.02	U	NA	0.11	NA	110	1	U	0.29	1.4	NA	NA	50	U	50	U	NA
M6	MW117	10/15/2003	0.05	U	360	0.23	NA	0.02	U	NA	0.062	J	NA	210	3.1	0.53	4.4	NA	NA	1400	1300	NA	NA	NA	
M6	MW118	7/10/1981	NA	NA	NA	NA	NA	NA	NA	NA	68	U	NA	NA	NA	5.5	U	100	U	NA	25	NA	NA	NA	
M6	MW118	10/16/2003	0.05	U	310	0.2	U	NA	0.02	U	NA	0.21	NA	75	1	U	0.43	2.4	NA	NA	50	U	50	U	NA
M6	MW119	10/16/2003	0.039	J	330	0.11	J	NA	0.02	U	NA	11	NA	160	1	U	0.41	2.7	NA	NA	1300	50	U	NA	NA
M6	MW123	6/3/1981	NA	NA	NA	NA	NA	NA	NA	NA	206	NA	NA	NA	NA	5.5	U	100	U	NA	67	NA	NA	NA	
M6	MW123R	10/14/2003	0.05	U	490	0.38	NA	0.02	U	NA	0.088	J	NA	250	1	U	0.6	4.1	NA	NA	3100	3200	NA	NA	
M6	MW123R	5/19/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	U	NA	NA	NA	NA	NA	NA	NA	
M6	MW123R	10/20/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	U	NA	NA	NA	NA	NA	NA	NA	
M6	MW125	6/4/1981	NA	NA	NA	NA	NA	NA	NA	NA	309	NA	NA	NA	NA	5.5	U	100	U	NA	130	NA	NA	NA	
M6	MW125	10/15/1991	NA	NA	NA	3800	NA	NA	NA	NA	610	NA	NA	NA	3.21	4.01	U	38.8	U	NA	13.7	NA	NA	NA	
M6	MW125	7/13/1998	0.205	268	1.24	874	NA	1040	NA	7	110	4	0.1	U	1	U	NA	NA	100	U	NA	5	U	NA	NA
M6	MW125	7/24/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW160	7/13/1998	NA	NA	NA	NA	NA	3070	NA	7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW160	10/16/2003	0.05	U	480	0.26	NA	0.02	U	NA	0.1	U	NA	56	4.8	0.73	4.9	NA	NA	NA	510	390	NA	NA	
M6	MW162	7/13/1998	0.02	U	346	1.24	97	NA	NA	NA	34.6	6	0.1	U	7.4	NA	NA	NA	NA	474	NA	312	NA	NA	
M6	MW162	7/24/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW162R	10/15/2003	0.05	U	600	0.21	NA	0.02	U	NA	0.083	J	NA	200	1	U	0.56	6.4	B	NA	1800	1800	NA	NA	
M6	MW166R	10/14/2003	0.3	310	0.37	B	NA	0.02	U	NA	0.083	J/JB	NA	460	1	U	0.52	1.2	B	NA	1000	J	980	NA	NA
M6	MW166R	5/19/2004	NA	NA	NA	NA	NA	NA	NA	NA	690	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW166R	10/25/2004	NA	NA	NA	NA	NA	NA	NA	NA	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW166R	5/5/2008	NA	NA	NA	NA	NA	NA	NA	NA	460	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW208	7/10/1998	NA	NA	NA	NA	NA	890	NA	7.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW210R	10/16/2003	0.05	U	350	0.22	NA	0.009	J	NA	7.9	NA	NA	71	2.8	0.7	2.7	NA	NA	NA	50	U	50	U	NA
M6	MW210R	10/17/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	U	50	U	NA
M6	MW212R	10/17/2003	0.05	U	350	0.71	NA	0.039	NA	0.23	NA	170	1.7	1.1	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW213R	10/17/2003	0.05	U	270	0.67	NA	0.02	U	NA	0.1	U	NA	190	1	U	0.79	12	NA	NA	430	50	U	NA	NA
M6	MW215R	10/16/2003	0.05	U	290	0.2	U	NA	0.02	U	NA	1.1	NA	100	1	U	0.47	1	NA	NA	50	U	50	U	NA
M6	MW307	7/10/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	U	3	U	100	U	NA	NA	NA	NA
M6	MW307	7/15/1998	NA	NA	NA	NA	NA	630	NA	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M6	MW307	5/9/2002	NA	NA	NA	NA	NA	NA	NA	NA	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M6	MW307-DUP	5/9/2002	NA	NA	NA	NA	NA	NA	NA	NA	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M6	MW307	5/15/2003	NA	NA	NA	NA	NA	NA	NA	NA	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M6	MW307	10/16/2003	0.053	250	0.12	J	NA	0.02	U	NA	3.9	NA	64	1	U	0.3	1.4	NA	NA	NA	100	U	50	U	NA
M6	MW307	5/20/2004	NA	NA	NA	NA	NA	NA	NA	NA	82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M6	MW307	10/20/2004	NA	NA	NA	NA	NA	NA	NA	NA	98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M6	MW307	7/15/2005	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M6	MW307	5/2/2006	NA	NA	NA	NA	NA	NA	NA	NA	51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M6	MW307	4/26/2007	NA	NA	NA	NA	NA	NA	NA	NA	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M6	MW307	5/8/2008	NA	NA	NA	NA	NA	NA	NA	NA	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW308	7/10/1998	NA		NA		NA		190		NA		NA		NA		NA		NA	
M6	MW308	5/9/2002	NA		NA		NA		NA		210		NA		NA		NA		NA	
M6	MW308	10/20/2003	0.037	J	260		0.24		NA		190		1	U	0.44		NA		510	
M6	MW309	5/8/2002	NA		NA		NA		NA		52		NA		NA		NA		NA	
M6	MW309	5/15/2003	NA		NA		NA		NA		63		NA		NA		NA		NA	
M6	MW309	10/17/2003	0.05	U	340		0.13	J	NA		35		1	U	0.43		NA		50	
M6	MW309	5/24/2004	NA		NA		NA		NA		73		NA		NA		NA		NA	
M6	MW309	10/20/2004	NA		NA		NA		NA		81		NA		NA		NA		NA	
M6	MW309	7/14/2005	NA		NA		NA		NA		69		NA		NA		NA		NA	
M6	MW309	5/1/2006	NA		NA		NA		NA		75		NA		NA		NA		NA	
M6	MW309	4/23/2007	NA		NA		NA		NA		63		NA		NA		NA		NA	
M6	MW309	5/8/2008	NA		NA		NA		NA		43		NA		NA		NA		NA	
M6	MW310R	5/8/2002	NA		NA		NA		NA		43		NA		NA		NA		NA	
M6	MW310R	5/15/2003	NA		NA		NA		NA		48		NA		NA		NA		NA	
M6	MW310R	10/17/2003	0.03	J	280		0.39		NA		38		1	U	0.48		NA		79	
M6	MW310R	7/14/2005	NA		NA		NA		NA		38		NA		NA		NA		NA	
M6	MW310R	5/1/2006	NA		NA		NA		NA		35		NA		NA		NA		NA	
M6	MW310R	4/23/2007	NA		NA		NA		NA		49		NA		NA		NA		NA	
M6	MW310R	5/8/2008	NA		NA		NA		NA		35		NA		NA		NA		NA	
M6	MW311	7/10/1998	NA		NA		NA		1370		NA		8.8		NA		NA		NA	
M6	MW311	10/14/2003	0.05	U	340		0.56	B	NA		0.02	U	NA		0.068	J/B	NA		160	
M6	MW312	10/14/2003	0.05	U	330		0.54		NA		0.02	U	NA		0.1	U	NA		170	
M6	MW313	7/13/1998	0.02	U	71.4		9.3		86		66	U	NA		277		44.5		4	
M6	MW313-DUP	7/13/1998	0.03		71.4		9.9		97		NA		NA		85.5		2	U	0.1	U
M6	MW313	7/24/1998	NA		NA		NA		NA		NA		NA		NA		6		NA	
M6	MW313-DUP	7/24/1998	NA		NA		NA		NA		NA		NA		NA		2	U	NA	
M6	MW313	10/17/2003	0.029	J	180		1.2		NA		0.007	J	NA		0.1	U	NA		180	
M6	MW314	7/10/1998	NA		NA		NA		NA		1340		NA		7.9		NA		NA	
M6	MW314	10/17/2003	0.05	U	400		0.2	U	NA		0.02	U	NA		0.59		NA		250	
M6	MW315	7/10/1993	NA		NA		NA		NA		990		NA		8.8		NA		NA	
M6	MW315	10/16/2003	0.05	U	380		0.2	U	NA		0.02	U	NA		0.059	J	NA		180	
M6	MW316	7/9/1998	0.02	U	334		4.4		81		NA		62		98.5		3		0.1	U
M6	MW316	10/14/2003	0.046	J	370		1.1		NA		0.02	U	NA		0.1	U	NA		130	
M6	MW317	7/9/1998	0.02	U	302		1.25		224		NA		NA		124		6		0.1	U
M6	MW317	10/14/2003	0.042	J	350		0.52		NA		0.006	J	NA		0.1	U	NA		170	
M6	MW318	7/9/1998	NA		NA		NA		NA		1850		NA		46		NA		NA	
M6	MW318	10/14/2003	0.031	J	410		1.2		NA		0.02	U	NA		0.1	U	NA		240	
M6	MW319	10/14/2003	0.042	J	440		2.2		NA		0.02	U	NA		0.1	U	NA		250	
M6	MW320R	10/13/2003	0.05	U	360		0.35	B	NA		0.02	U	NA		0.1	U	NA		220	
M6	MW320R	10/13/2003	0.05	U	360		0.35	B	NA		0.02	U	NA		0.1	U	NA		220	

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Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M6	MW650	5/1/2002	NA	NA	NA	NA	NA	NA	NA	NA	160	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW650	10/15/2003	0.05	U	370	0.13	J	NA	2.2	NA	120	1	U	0.32	1.8	NA	250	U	50	U
M6	MW650-DUP	10/15/2003	0.05	U	360	0.2	U	NA	2.1	NA	140	1	U	0.13	1.9	NA	50	U	50	U
M6	MW651	5/1/2002	NA	NA	NA	NA	NA	NA	NA	NA	160	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW651	10/15/2003	0.026	J	520	0.29	NA	NA	0.02	U	360	1	U	0.86	4.6	NA	100	U	50	U
M6	MW652	5/24/2001	NA	NA	NA	NA	NA	NA	NA	NA	520	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652-DUP	5/24/2001	NA	NA	NA	NA	NA	NA	NA	NA	500	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	5/8/2002	NA	NA	NA	NA	NA	NA	NA	NA	170	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	5/15/2003	NA	NA	NA	NA	NA	NA	NA	NA	200	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652-DUP	5/15/2003	NA	NA	NA	NA	NA	NA	NA	NA	230	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	10/17/2003	0.05	U	81	0.64	NA	NA	0.037	NA	350	1	U	1.1	18	NA	100	U	50	U
M6	MW652-DUP	10/17/2003	0.05	U	350	0.84	NA	NA	0.038	NA	340	1	U	1.2	18	NA	100	U	50	U
M6	MW652	10/21/2004	NA	NA	NA	NA	NA	NA	NA	NA	390	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652-DUP	10/21/2004	NA	NA	NA	NA	NA	NA	NA	NA	420	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	7/13/2005	NA	NA	NA	NA	NA	NA	NA	NA	230	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	10/18/2005	NA	NA	NA	NA	NA	NA	NA	NA	410	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	5/1/2006	NA	NA	NA	NA	NA	NA	NA	NA	330	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	10/6/2006	NA	NA	NA	NA	NA	NA	NA	NA	250	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	4/24/2007	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	10/10/2007	NA	NA	NA	NA	NA	NA	NA	NA	270	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	5/7/2008	NA	NA	NA	NA	NA	NA	NA	NA	110	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW652	5/7/2008	NA	NA	NA	NA	NA	NA	NA	NA	110	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW653	5/8/2002	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW653	10/20/2003	0.034	J	300	0.43	NA	NA	0.093	J	120	1	U	0.66	1.5	NA	110		50	U
M6	MW654	10/20/2003	0.065		370	0.14	J	NA	0.1	NA	170	1	U	1.1	3	NA	50	U	250	U
M6	MW655	10/16/2003	0.12		420	0.25	NA	NA	0.02	U	60	1	U	0.75	3.2	NA	1100		940	NA
M6	MW662	5/7/2002	NA	NA	NA	NA	NA	NA	NA	NA	150	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW662	10/13/2003	0.05	U	340	0.16	J/JB	NA	0.02	U	230	1	U	0.35	1.7	B	530	J	540	NA
M6	MW663	5/7/2002	NA	NA	NA	NA	NA	NA	NA	NA	130	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW663	10/13/2003	0.05	U	360	0.66	B	NA	0.02	U	140	0.6	J	1.1	3	NA	380	J	330	NA
M6	MW664-DUP	5/16/2003	NA	NA	NA	NA	NA	NA	NA	NA	560	NA	NA	NA	NA	NA	NA	NA	NA	
M6	MW664	10/14/2003	0.05	U	530	0.23	NA	NA	0.02	U	270	1	U	0.37	2.1	NA	5800	J	250	U
M6	MW665	10/13/2003	0.05	U	350	0.54	B	NA	0.02	U	210	1	U	0.65	1.2	B	50	U/UJ	50	U
M6	SWJC01	5/1/2002	NA	NA	NA	NA	NA	NA	NA	NA	170	NA	NA	NA	NA	NA	NA	NA	NA	
M6	SWJC02	5/1/2002	NA	NA	NA	NA	NA	NA	NA	NA	210	NA	NA	NA	NA	NA	NA	NA	NA	
M6	SWJC03	5/1/2002	NA	NA	NA	NA	NA	NA	NA	NA	77	NA	NA	NA	NA	NA	NA	NA	NA	
M6	SWJC03-DUP	5/1/2002	NA	NA	NA	NA	NA	NA	NA	NA	99	NA	NA	NA	NA	NA	NA	NA	NA	

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Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l		
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150		
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS		
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	
M7	MW112	5/22/1981	NA		NA		NA		NA		84		NA		NA		5.5	U	100	U	
M7	MW112	8/9/1991	NA		NA		25		NA		88.4		NA		NA		4.01	U	38.8	U	
M7	MW112	10/14/2003	0.05	U	410	0.2	U	NA	0.02	U	110	1	U	0.37	2.2	NA	50	U/UJ	100	U	
M7	MW113	5/22/1981	NA		NA		NA		NA		208		NA		NA		5.5	U	100	U	
M7	MW113	8/9/1991	NA		NA		24.8		NA		95.1		NA		NA	6.07	4.01	U	38.8	U	
M7	MW113	10/14/2003	0.05	U	500	0.11	J	NA	0.02	U	160	4.3		0.28	1.9	B	50	U	50	U	
M7	MW115	5/22/1981	NA		NA		NA		NA		68	U	NA		NA		5.5	U	100	U	
M7	MW115	10/15/2003	0.05	U	340	0.42		NA	0.02	U	94	1	U	0.62	1.7	NA	250		250		
M7	MW124	5/22/1981	NA		NA		NA		NA		548		NA		NA		5.5	U	283		
M7	MW124	8/9/1991	NA		NA		23.8		NA		140		NA		NA	7.59	4.01	U	486		
M7	MW124R	12/9/1998	NA		NA		NA		NA		246		NA		NA		NA		NA		
M7	MW124R-DUP	12/9/1998	NA		299		NA		NA		246		NA		NA		NA		NA		
M7	MW124R	10/15/2003	0.05	U	300	0.23		NA	0.01	J	170	1	U	2.4	14		50	U	50	U	
M7	MW124R-DUP	10/15/2003	0.05	U	NA	0.68		NA	0.012	J	120	1	U	2.5	13		50	U	50	U	
M7	MW157	8/6/1998	0.02	U	356	6.95		97	NA		172	2	U	0.19	28.4	5	U	3	U	2070	
M7	MW157	10/16/2003	0.05	U	430	0.21		NA	0.02	U	270	3.5		0.54	4.8	NA		50	U	50	U
M7	MW158	7/13/1998	NA		NA		NA		1380		7.5		16800		NA		5	U	3	U	
M7	MW158	10/16/2003	0.05	U	410	0.15	J	NA	0.02	U	130	1	U	0.73	5.9	NA		123		260	
M7	MW159	10/29/1991	NA		NA		NA		NA		NA		NA		NA	3.93	4.01	U	496		
M7	MW159	10/30/1991	NA		NA		31.9		NA		1100		NA		NA		NA		NA		
M7	MW159	7/13/1998	NA		NA		NA		3700		7.9		NA		NA		NA		NA		
M7	MW159	10/16/2003	NA		NA		NA		NA		NA		NA		1.7		NA		NA		
M7	MW159	10/22/2003	0.05	U	220	0.46		NA	0.009	J	1100	J		1.3	NA		NA		NA		
M7	MW159	10/24/2003	NA		NA		NA		NA		NA		4.5		NA		NA		NA		
M7	MW159	10/28/2003	NA		NA		NA		NA		NA		NA		NA		NA		3100		
M7	MW159	5/20/2004	NA		NA		NA		NA		840		NA		NA		NA		NA		
M7	MW159	10/21/2004	NA		NA		NA		NA		1100		NA		NA		NA		NA		
M7	MW159	5/3/2006	NA		NA		NA		NA		920		NA		NA		NA		NA		
M7	MW216	7/28/1988	NA		NA		NA		NA		NA		NA		NA		0.579		123		
M7	MW216	10/17/1991	NA		NA		420		NA		275		NA		NA	5.71	4.01	U	46		
M7	MW216	7/9/1998	NA		NA		NA		66		7.5		NA		5	U	3	U	196		
M7	MW216	10/15/2003	0.05	U	540	0.44		NA	0.02	U	290	0.7	J	0.95	3.3	NA		570		580	
M7	MW217	7/18/1988	NA		NA		NA		NA		270		NA		NA		0.35	U	182		
M7	MW217	8/27/1991	NA		NA		10	U	NA		237		NA		NA	7.95	4.01	U	38.8	U	
M7	MW217	7/9/1998	NA		NA		NA		1880		0.24	U	NA		NA	5	U	3	U	100	U
M7	MW660	10/16/2003	0.05	U	490	0.87		NA	0.02	U	190	0.6	J	1.3	3.3	NA		670		680	

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M8	MW121	6/2/1981	NA		NA		NA		NA		321	NA	NA	NA	NA	7.3	100	U	323	
M8	MW121	7/1/1998	0.02	U	429		3.76		10800		101	2	U	1.1	6.05	NA	352	NA	37.2	
M8	MW147	9/23/1991	NA		NA		23.8	0	U	0	U	NA	NA	75.6	NA	5.89	4.01	U	8.32	
M8	MW147R	10/21/2003	0.037	J	270		0.21	0.02	U	NA	0.1	U	NA	110	1	U	0.37	1.4	NA	
M8	MW148	7/10/1981	NA		NA		NA		NA		180	NA	NA	NA	NA	7.2	100	U	140	
M8	MW148	9/23/1991	NA		NA		60.5	NA	NA	NA	105	NA	NA	NA	6.16	4.01	U	38.8	U	
M8	MW148	12/2/1994	NA		NA		NA	NA	NA	NA	76	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW148RR	10/21/2003	0.028	J	300		0.18	J	NA	0.44	460	1	U	0.27	1.7	NA	250	U	250	
M8	MW148RR-DUP	10/21/2003	0.05	U	260		0.15	J	NA	0.45	470	0.7	J	0.23	1.6	NA	50	U	250	
M8	MW148RR	5/20/2004	NA		NA		NA	NA	NA	NA	440	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW148RR-DUP	5/20/2004	NA		NA		NA	NA	NA	NA	430	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW148RR	10/20/2004	NA		NA		NA	NA	NA	NA	480	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW148RR-DUP	10/20/2004	NA		NA		NA	NA	NA	NA	450	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW148RR	7/21/2005	NA		NA		NA	NA	NA	NA	420	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW148RR	5/4/2006	NA		NA		NA	NA	NA	NA	460	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW148RR-DUP	5/4/2006	NA		NA		NA	NA	NA	NA	450	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW148RR	5/1/2007	NA		NA		NA	NA	NA	NA	320	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW148RR	5/19/2008	NA		NA		NA	NA	NA	NA	290	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW323	10/23/1991	NA		NA		500	NA	NA	NA	48.6	NA	NA	NA	4.46	4.01	U	38.8	U	
M8	MW323	6/30/1998	0.02	U	330		2.68	198	NA	11120	494	2	U	3.85	1	U	NA	U	134	
M8	MW323-DUP	6/30/1998	0.02	U	339		2.12	198	NA	13950	106	2	U	3.6	17.6	NA	697	U	131	
M8	MW323R	5/7/2002	NA		NA		NA	NA	NA	NA	29	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW323R	10/21/2003	0.05	U	410		0.17	J	NA	0.02	U	NA	0.1	U	0.27	1.6	NA	50	U	
M8	MW324	10/23/1991	NA		NA		31.3	NA	NA	NA	142	NA	NA	NA	3.57	4.01	U	38.8	U	
M8	MW324	7/1/1998	0.02	U	306		1.64	50	U	NA	96	2	U	2.35	1	U	NA	U	169	
M8	MW325	10/23/1991	NA		NA		420	NA	NA	NA	56.4	NA	NA	NA	3.03	4.01	U	38.8	U	
M8	MW325	6/30/1998	0.02	U	208		1.32	365	NA	9110	22.5	2	U	0.23	4.94	NA	115	U	5	
M8	MW325R	10/13/2003	0.05	U	380		0.17	J/JB	NA	0.02	U	NA	2.5	0.45	2.8	NA	250	U	250	
M8	MW325R	5/20/2004	NA		NA		NA	NA	NA	NA	410	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW325R	10/21/2004	NA		NA		NA	NA	NA	NA	340	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW325R	5/19/2008	NA		NA		NA	NA	NA	NA	410	NA	NA	NA	NA	NA	NA	U	NA	
M8	MW327	9/24/1991	NA		NA		180	NA	NA	NA	500	NA	NA	NA	5.45	4.01	U	38.8	U	
M8	MW327R	12/9/1998	NA		NA		NA	NA	NA	NA	143	NA	NA	NA	NA	NA	NA	U	230	
M8	MW327R	10/21/2003	0.05	U	140		4	0.016	J	NA	0.096	J	NA	170	1.8	4.7	9.9	NA	780	



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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M8	MW330	10/23/1991	NA		NA		10	U	NA		NA		213	NA	NA		4.38		314	
M8	MW330	12/2/1994	NA		NA		NA		NA		NA		210	NA	NA		NA		NA	
M8	MW330	5/7/2002	NA		NA		NA		NA		NA		370	NA	NA		NA		NA	
M8	MW330	10/21/2003	0.05	U	410		0.18	J	NA		0.02	U	NA		0.043	J/R	500	J	1	U
M8	MW330	5/21/2004	NA		NA		NA		NA		NA		570	NA	NA		NA		18000	
M8	MW330	10/21/2004	NA		NA		NA		NA		NA		440	NA	NA		NA		250	U
M8	MW330	10/19/2005	NA		NA		NA		NA		NA		340	NA	NA		NA		NA	
M8	MW330	5/4/2006	NA		NA		NA		NA		NA		510	NA	NA		NA		NA	
M8	MW330	10/12/2006	NA		NA		NA		NA		NA		560	NA	NA		NA		NA	
M8	MW330	4/30/2007	NA		NA		NA		NA		NA		570	NA	NA		NA		NA	
M8	MW330-DUP	4/30/2007	NA		NA		NA		NA		NA		370	NA	NA		NA		NA	
M8	MW330	10/16/2007	NA		NA		NA		NA		NA		540	NA	NA		NA		NA	
M8	MW330	5/19/2008	NA		NA		NA		NA		NA		570	NA	NA		NA		NA	
M8	MW332	12/2/1994	NA		NA		NA		NA		NA		150	NA	NA		NA		NA	
M8	MW360	12/1/1992	NA		NA		NA		NA		NA		2800	NA	NA		6.16		4.01	U
M8	MW360	12/2/1994	NA		NA		NA		NA		NA		3000	NA	NA		NA		38.8	U
M8	MW361	12/1/1992	NA		NA		NA		NA		NA		2800	NA	NA		3.03	U	4.01	U
M8	MW361	12/2/1994	NA		NA		NA		NA		NA		3000	NA	NA		NA		38.8	U
M8	SW10	7/28/1988	NA		NA		NA		NA		NA		140	NA	NA		NA		0.35	U

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Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese		
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l		
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150		
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS		
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	
M13	AEHA 14	10/11/1991	NA		NA		48.1		NA		NA		69.1		NA		3.66		4.01		
M13	AEHA 14	7/8/1998	0.123		263	1.49	153		NA		NA		83.5	2	0.1	2.58	5	3	100		
M13	AEHA 14	7/13/1998	NA		NA		NA		NA		600	NA	NA	NA	NA	NA	NA	NA	NA		
M13	AEHA 14R	5/15/2008	NA		NA		NA		NA		NA		160	NA	NA	NA	NA	NA	NA		
M13	AEHA 15	10/11/1991	NA		NA		67.4		NA		NA		13.6		NA		3.66		4.01		
M13	AEHA 15	7/8/1998	0.139		293	1.36	254		NA		640	NA	15	4.14	0.1	4.38	3	1	50		
M13	AEHA 15	5/20/2008	NA		NA		NA		NA		NA		17	NA	NA	NA	NA	NA	NA		
M13	GC4	7/8/1998	NA		NA		NA		NA		NA		NA		NA		5	3	1160		
M13	GC6	7/8/1998	NA		NA		NA		NA		830	NA	20	NA	NA	NA	5	3	100		
M13	M3	7/8/1998	0.02	U	319	1.78	50	U	NA		1190	NA	15	167	2	0.1	1	5	111		
M13	MW04	7/9/1998	NA		NA		NA		NA		2790	NA	433	NA	NA	NA	NA	NA	NA		
M13	MW126	5/27/1981	NA		NA		NA		NA		89.7	NA	NA	NA	NA	NA	5.5	U	100		
M13	MW126	9/23/1991	NA		NA		96.5		NA		NA	NA	132	NA	NA	NA	5.71		4.01		
M13	MW126	7/8/1998	0.02	U	301	1.79	50	U	NA		1460	NA	54	203	2	0.1	5	3	100		
M13	MW126R	2/4/2004	0.05	U	350	0.14	F		NA		NA	NA	84	1	0.28	1.3	NA	NA	90		
M13	MW126R	5/20/2008	NA		NA		NA		NA		NA	NA	63	NA	NA	NA	NA	NA	NA		
M13	MW3	7/28/1998	NA		NA		NA		NA		1700	NA	3.8	NA	NA	NA	NA	NA	NA		
M13	MW321	10/11/1991	NA		NA		2500		NA		NA	NA	202	NA	NA	4.64		4.01			
M13	MW321	7/8/1998	0.02	U	356	1.81	1530		NA		NA	NA	129	2	0.1	1	5	3	100		
M13	MW321	10/16/2003	0.05	U	400	0.24	NA	0.02	U		NA	64	1	0.6	2.2	NA	NA	50	50		
M13	MW321-DUP	10/16/2003	0.05	U	410	0.27	NA	0.02	U		NA	130	1	0.55	2.2	NA	NA	100	50		
M13	MW322	10/10/1991	NA		NA		10	U	NA		NA	NA	127	NA	NA	NA	38.8		4.01		
M13	MW322	7/9/1998	NA		NA		NA		NA		NA	NA	NA	NA	NA	5	3	1000	U		
M13	MW322	10/17/2003	0.05	U	330	0.2	U		NA	0.02	U	NA	170	1	0.11	J	1.6	NA	50	50	
M13	MW345	10/5/1991	NA		NA		NA		NA		NA	NA	NA	NA	NA	5.71		4.01			
M13	MW345	11/20/1991	NA		NA		1000	U	NA		NA	NA	NA	NA	NA	NA	NA	74.1	NA		
M13	MW345	7/8/1998	NA		NA		NA		NA		2780	NA	0.24	U	NA	5	3	516	NA		
M13	MW345-DUP	7/8/1998	NA		NA		NA		NA		66	U	9.3	NA	NA	5	3	100	U		
M13	MW350	10/10/1991	NA		NA		940		NA		NA	NA	117	NA	NA	4.91		4.01			
M13	MW350	7/8/1998	0.02	U	312	1.48	1780		NA		1940	NA	7	77	2	0.1	5	3	100		
M13	MW350	5/9/2002	NA		NA		NA		NA		NA	NA	150	NA	NA	NA	NA	NA	NA		
M13	MW350	10/16/2003	0.05	U	430	0.16	J		NA	0.02	U	NA	3.3	NA	260	4	0.29	1.6	NA		
M13	MW362	2/3/2004	0.05	U	310	0.2	U		NA	0.009	J	NA	0.11	NA	230	1	1.1	1.2	NA		
M13	MW362	5/13/2008	NA		NA		NA		NA		NA	NA	260	NA	NA	NA	NA	NA	NA		
M13	MW363	2/4/2004	0.025	F	440	0.18	F	NA	NA		NA	NA	200	1	0.36	B	1.8	NA	1500		
M13	MW363-DUP	2/4/2004	0.026	F	420	0.12	F	NA	NA		NA	NA	200	1	0.35	B	1.8	NA	1500		
M13	MW364	2/4/2004	0.05	U	360	0.17	F	NA	NA		NA	NA	130	0.6	F	0.27	B	1.3	NA		
M13	MW806	5/15/2008	NA		NA		NA		NA		NA	NA	86	NA	NA	NA	NA	NA	NA		
M13	MW807	5/15/2008	NA		NA		NA		NA		NA	NA	190	NA	NA	NA	NA	NA	NA		
M13	MW807-DUP	5/15/2008	NA		NA		NA		NA		NA	NA	190	NA	NA	NA	NA	NA	NA		

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Compounds			c-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
			Unit	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l
			Risk Based RG	NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150
			Surface Water RG	NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M13	MW808	5/15/2008	NA	NA	NA	NA	NA	NA	NA	NA	140	NA	NA	NA	NA	NA	NA	NA	NA	
M13	MW809	5/15/2008	NA	NA	NA	NA	NA	NA	NA	NA	6.1	NA	NA	NA	NA	NA	NA	NA	NA	

**GRU 3**  
Volatile Organic Compounds

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Compounds			1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M3	MW233	08/09/1991	1	U	1	U	1	U	1	U	10	U	30	U	20		1	U	1	U	1	U	NA		3	U	400		1	U	NA		NA		2	U		
M3	MW233	07/16/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M3	MW233	12/09/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	NA		1	U	NA		NA		1	U		
M3	MW233	06/30/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M3	MW233-DUP	06/30/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M3	MW233	10/27/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M3	MW233	04/30/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M3	MW233-DUP	04/30/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M3	MW352	06/30/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M3	MW352	05/06/2008	1	U	1	U	1	U	2	U	10	U	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U

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Site	Well ID	Sample Date	1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethane		Toluene		Trichloroethane		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF			
M10	MW219	07/15/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M10	MW219	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	1.4		0.5	U	NA		NA		0.84	U		
M10	MW219	07/15/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M10	MW220	07/25/1988	6.5	U	5	U	5	U	NA		NA		NA		20		NA		5	U	40		NA		1.4	U	10000	S	1.5	U	NA		NA		800			
M10	MW220	10/11/1991	50	U	70	U	50	U	50	U	600	U	1000	U	50	U	50	U	50	U	300		NA		200	U	20000		50	U	NA		NA		5000			
M10	MW220	07/15/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M10	MW220	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M10	MW220	10/28/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M10	MW220	05/18/2000	0.5	U	0.5	U	0.5	U	0.5	U	2	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U/UJ	0.5	U		
M10	MW221	07/25/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M10	MW221	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	7.4		0.5	U	NA		NA		1.8			
M10	MW221	07/15/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M10	MW222	05/11/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M10	MW222	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M10	MW222	07/15/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M10	MW223	07/18/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M10	MW223	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	2.2		0.5	U	NA		NA		0.84	U		
M10	MW223	07/15/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M10	MW224	07/15/1988	6.5	U	5	U	5	U	NA		NA		NA		2		NA		5	U	3		NA		1.4	U	20000	D	1.5	U	NA		NA		500			
M10	MW224	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.58		0.5	U	NA		NA		0.84	U		
M10	MW224	12/01/1992	50	U	70	U	50	U	50	U	600	U	1000	U	50	U	50	U	50	U	50	U	NA		200	U	6000		50	U	NA		NA		80			
M10	MW224	07/15/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M10	MW224	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M10	MW224-DUP	06/29/1999	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M10	MW224	10/29/1999	5	U	5	U	5	U	5	U	5	U	5	U/R	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	NA		NA		5	U		
M10	MW224	05/18/2000	0.5	U	0.5	U	0.5	U	0.5	U	2	U	2	U/UJ	0.5	U	2	U/UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U/UJ	0.5	U		
M10	MW225	05/11/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M10	MW225	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M10	MW225	07/15/1998	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA		1	U		
M10	MW226	05/11/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M10	MW226	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		
M10	MW227	07/25/1988	6.5	U	5	U	5	U	NA		NA		NA		5	U	NA		5	U	5	U	NA		1.4	U	5	U/R	1.5	U	NA		NA		5	U		
M10	MW227	10/11/1991	0.5	U	0.68	U	0.5	U	0.5	U	6.4	U	13	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		1.6	U	0.5	U	0.5	U	NA		NA		0.84	U		

**GRU 3**  
Metals and Indicator Parameters



**Summary of Historical Analytical Results for Indicator Parameters in Groundwater  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

Compounds			c-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M3	MW233	7/18/1988	NA	NA	NA	NA	NA	NA	NA	NA	73	NA	NA	NA	NA	0.35	U	57.5	NA	42.8
M3	MW233	8/9/1991	NA	NA	NA	10	U	NA	NA	NA	48	NA	NA	NA	NA	4.01	U	60.3	NA	36.9

**Summary of Historical Analytical Results for Indicator Parameters in Groundwater  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

Compounds			o-Phosphate	Alkalinity	Ammonia	Nitrate/Nitrite	Nitrate (NO2)	Carbon Dioxide	Nitrate (NO3)	Methane	Sulfate (SO4)	Sulfide	TKN	TOC	Antimony	Cadmium	Iron	Diss. Iron	Manganese	
Unit			mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Risk Based RG			NS	NS	NS	10000	1000	NS	NS	NS	400	NS	NS	NS	6	5	500	5000	150	
Surface Water RG			NS	NS	NS	NS	NS	NS	NS	NS	500	NS	NS	NS	NS	NS	NS	NS	NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M10	MW219	7/15/1998	NA		NA		NA		1270		NA		6950		NA		NA		NA	
M10	MW221	7/15/1998	0.02	U	275		1.4		50	U	NA		NA		36.5		2	U	0.1	U
M10	MW221	7/24/1998	NA		NA		NA		NA		NA		NA		2	U	NA		NA	
M10	MW222	7/15/1998	0.068		250		1.59		50	U	NA		770		17		46.5		2	U
M10	MW222	7/24/1998	NA		NA		NA		NA		NA		NA		2	U	NA		NA	
M10	MW223	7/15/1998	0.02	U	279		1.53		50	U	NA		1300		7.3		97.5		3	
M10	MW223	7/24/1998	NA		NA		NA		NA		NA		NA		2	U	NA		NA	
M10	MW224	12/1/1992	NA		NA		NA		NA		NA		NA		320		NA		NA	
M10	MW225	7/15/1998	0.02	U	348		0.22		61		NA		1620		8.9		114		2	U
M10	MW225	7/24/1998	NA		NA		NA		NA		NA		NA		114		NA		NA	
M10	MW331	7/15/1998	0.1		339		1.86		NA		NA		1460		5950		1	U	2	U
M10	MW331	7/24/1998	NA		NA		NA		NA		NA		NA		2		NA		NA	
M10	MW331	11/3/1999	NA		NA		NA		NA		NA		29200		NA		NA		NA	

**GRU 3**  
Other Analyses  
Explosives

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
						ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M10	MW223	MW223	7/18/1988	1.51	U	1.26	U	2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		NA		3.76	U	3.03	U
M10	MW224	MW224	12/1/1992	NA		NA		NA		4.5	U	0.79	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

				Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl	
						Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M3	MW233	MW233	7/18/1991	1.51	U	24.5		2.16	U	3.6	U	2.64	U	NA		2.79	U	NA		NA		NA		NA		NA		NA		3.76	U	3.03	U
M3	MW233	MW233	8/9/1991	0.449	U	0.611	U	0.635	U	4.5	U	0.79	U	NA		0.406	U	NA		NA		NA		1.21	U	0.645	U	1.17	U	2.49	U		

## M11 Landfill Monitoring Data

**Summary of Historical Analytical Results for Volatile Organic Compounds in Groundwater  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

Compounds			1,1,1-Trichloroethane		1,1-Dichloroethane		1,2-Dichloroethane		1,2-Dichloroethane (total)		2-Butanone (MEK)		Acetone		Benzene		Carbon disulfide		Chlorobenzene		Ethylbenzene		Methylene Chloride		Tetrachloroethene		Toluene		Trichloroethene		Trichloro-trifluoroethane		Vinyl Chloride		Xylenes (total)			
			Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
			Groundwater Class 1 RG		200		700		5		70		NC		NC		5		700 (NC)		100		700		5 (NC)		5		1000		5		NA		2 (NC)		10000	
			Groundwater Class 2 RG		1000		3500		25		200		NC		NC		25		3500 (NC)		500		1000		50 (NC)		25		2500		25		NA		10 (NC)		10000	
			Surface Water RG		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF		
M11	MW108	05/21/2008	1	U	1	UJ	1	U	2	U	10	U	10	UJ	1	U	5	UJ	1	U	1	U	1	UJ	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M11	MW333	05/12/2008	1	U	1	U	1	U	2	U	10	UR	10		1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M11	MW334	05/12/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M11	MW335	05/13/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M11	MW336	05/13/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M11	MW337	05/13/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M11	MW340	05/14/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M11	MW340-DUP	05/14/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M11	MW802	05/15/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U
M11	MW804	05/15/2008	1	U	1	U	1	U	2	U	10	UR	10	U	1	U	5	UJ	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U



**Summary of Historical Analytical Results for Indicator Parameters in Groundwater  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

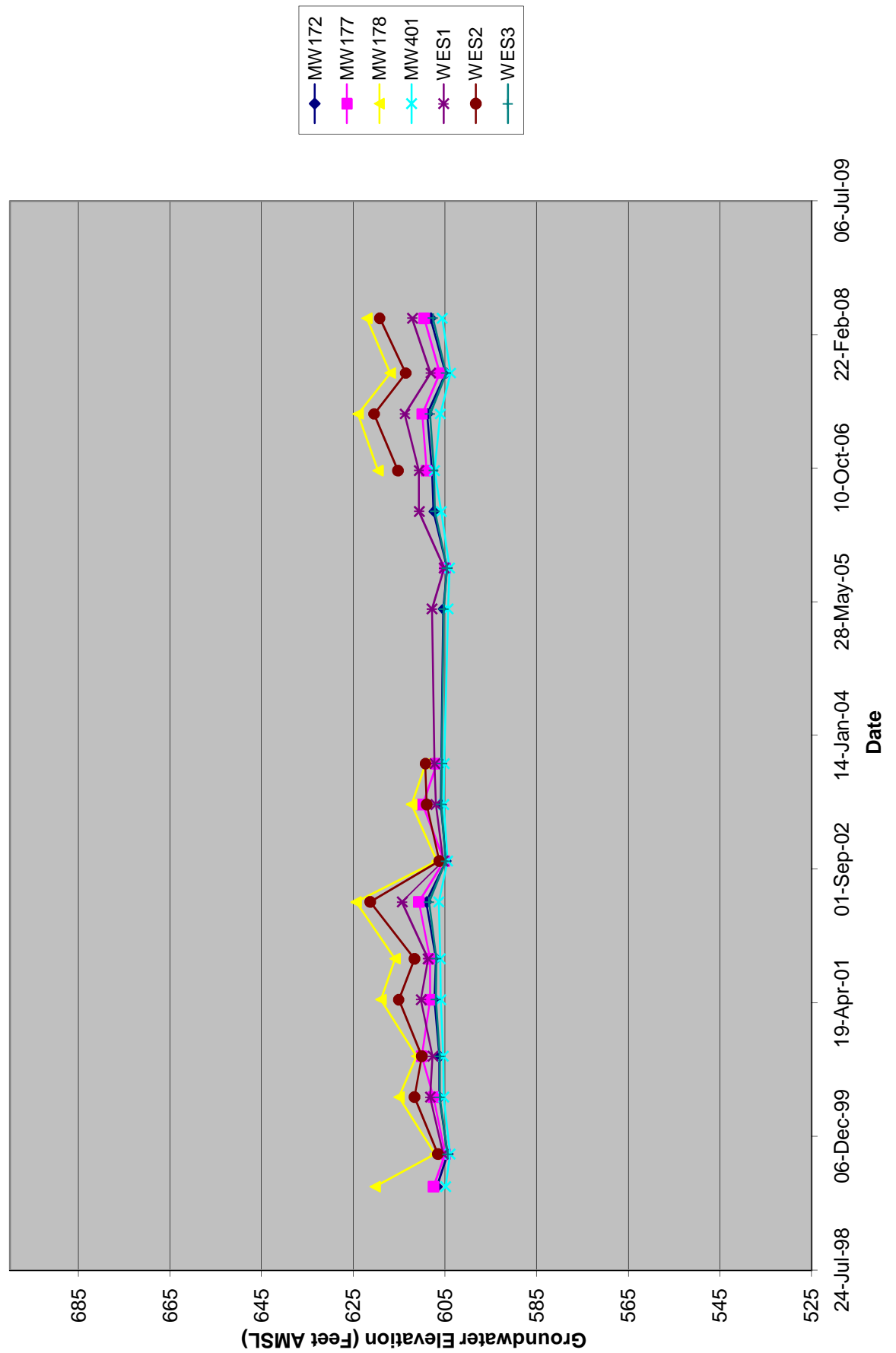
Compounds			o-Phosphate		Alkalinity		Ammonia		Nitrate/Nitrite		Nitrate (NO2)		Carbon Dioxide		Nitrate (NO3)		Methane		Sulfate (SO4)		Sulfide		TKN		TOC		Antimony		Cadmium		Iron		Diss. Iron		Manganese	
Unit			mg/l		mg/l		mg/l		ug/l		mg/l		mg/l		mg/l		ug/l		mg/l		mg/l		mg/l		mg/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Risk Based RG			NS		NS		NS		10000		1000		NS		NS		NS		400		NS		NS		NS		6		5		500		5000		150	
Surface Water RG			NS		NS		NS		NS		NS		NS		NS		NS		500		NS		NS		NS		NS		NS		NS		NS		NS	
Site	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF
M11	MW108	5/21/2008	NA		NA		NA		NA		NA		NA		NA		NA		120		NA		NA		NA		NA		NA		NA		NA		NA	
M11	MW333	5/12/2008	NA		NA		NA		NA		NA		NA		NA		NA		66		NA		NA		NA		NA		NA		NA		NA		NA	
M11	MW334	5/12/2008	NA		NA		NA		NA		NA		NA		NA		NA		530		NA		NA		NA		NA		NA		NA		NA		NA	
M11	MW335	5/13/2008	NA		NA		NA		NA		NA		NA		NA		NA		1300		NA		NA		NA		NA		NA		NA		NA		NA	
M11	MW336	5/13/2008	NA		NA		NA		NA		NA		NA		NA		NA		400		NA		NA		NA		NA		NA		NA		NA		NA	
M11	MW337	5/13/2008	NA		NA		NA		NA		NA		NA		NA		NA		300		NA		NA		NA		NA		NA		NA		NA		NA	
M11	MW340	5/14/2008	NA		NA		NA		NA		NA		NA		NA		NA		70		NA		NA		NA		NA		NA		NA		NA		NA	
M11	MW340-DUP	5/14/2008	NA		NA		NA		NA		NA		NA		NA		NA		59		NA		NA		NA		NA		NA		NA		NA		NA	
M11	MW802	5/15/2008	NA		NA		NA		NA		NA		NA		NA		NA		78		NA		NA		NA		NA		NA		NA		NA		NA	
M11	MW804	5/15/2008	NA		NA		NA		NA		NA		NA		NA		NA		320		NA		NA		NA		NA		NA		NA		NA		NA	

**Summary of Historical Explosives Groundwater Analytical Results  
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, IL**

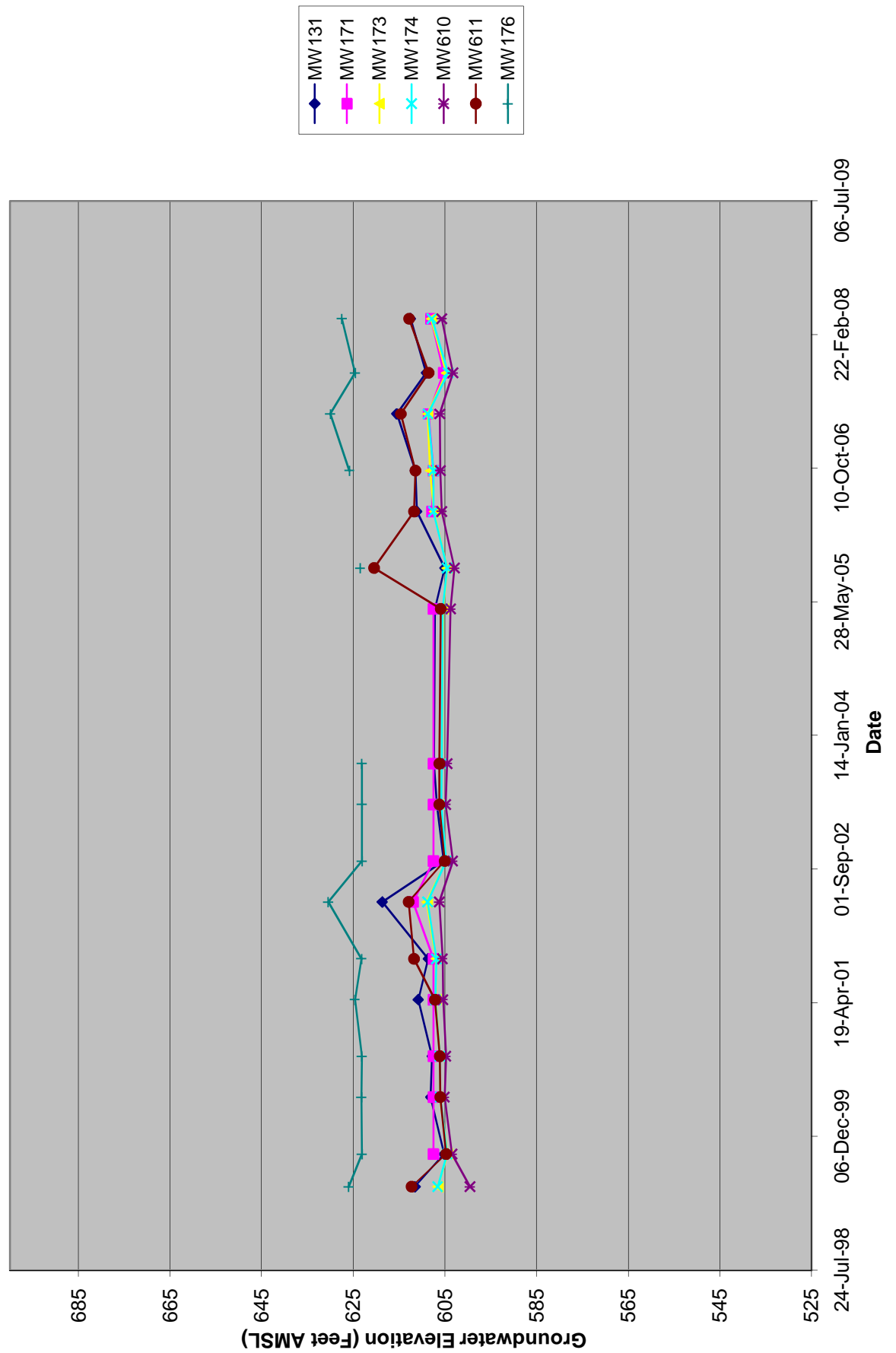
		Compounds		1,3,5-Trinitrobenzene		1,3-Dinitrobenzene		2,4,6-Trinitrotoluene (TNT)		2,4-Dinitrotoluene		2,6-Dinitrotoluene		2-Amino-4,6-Dinitrotoluene		2-Nitrotoluene		3-Nitrotoluene		4-Amino-2,6-Dinitrotoluene		4-Nitrotoluene		HMX		Nitrobenzene		RDX		Tetryl			
				Unit		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l			
				Minimum RG		5.1		4		9.5		0.42		0.42		NL		62		NL		NL		NL		260		51		2.6		200	
				Risk Based RG		5.1		10		9.5		0.42		0.42		NC		5100		NC		NC		NC		5100		51		2.6		200	
				Surface Water RG		15		4		75		330		150		NS		62		NS		NS		NS		260		8000		500		NS	
Site	Well ID	Well ID	Sample Date	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF	Result	LF/VF				
M11	MW108	MW108	5/21/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M11	MW333	MW333	5/12/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M11	MW334	MW334	5/12/2008	0.46	U	0.46	U	0.46	U	0.46	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.46	U	0.46	U	0.92	U				
M11	MW335	MW335	5/13/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M11	MW336	MW336	5/13/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M11	MW337	MW337	5/13/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M11	MW340	MW340	5/14/2008	0.39	U	0.39	U	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.39	U	0.39	U	0.78	U				
M11	MW340	MW340-DUP	5/14/2008	0.4	U	0.4	U	0.4	U	0.4	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.4	U	0.4	U	0.81	U				
M11	MW802	MW802	5/15/2008	0.42	U	0.42	U	0.42	U	0.42	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.42	U	0.42	U	0.83	U				
M11	MW804	MW804	5/15/2008	0.7	U	0.7	U	0.7	U	0.7	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	0.7	U	0.7	U	1.4	U				

**Attachment 5**  
Data Plots - Groundwater Elevation vs. Time

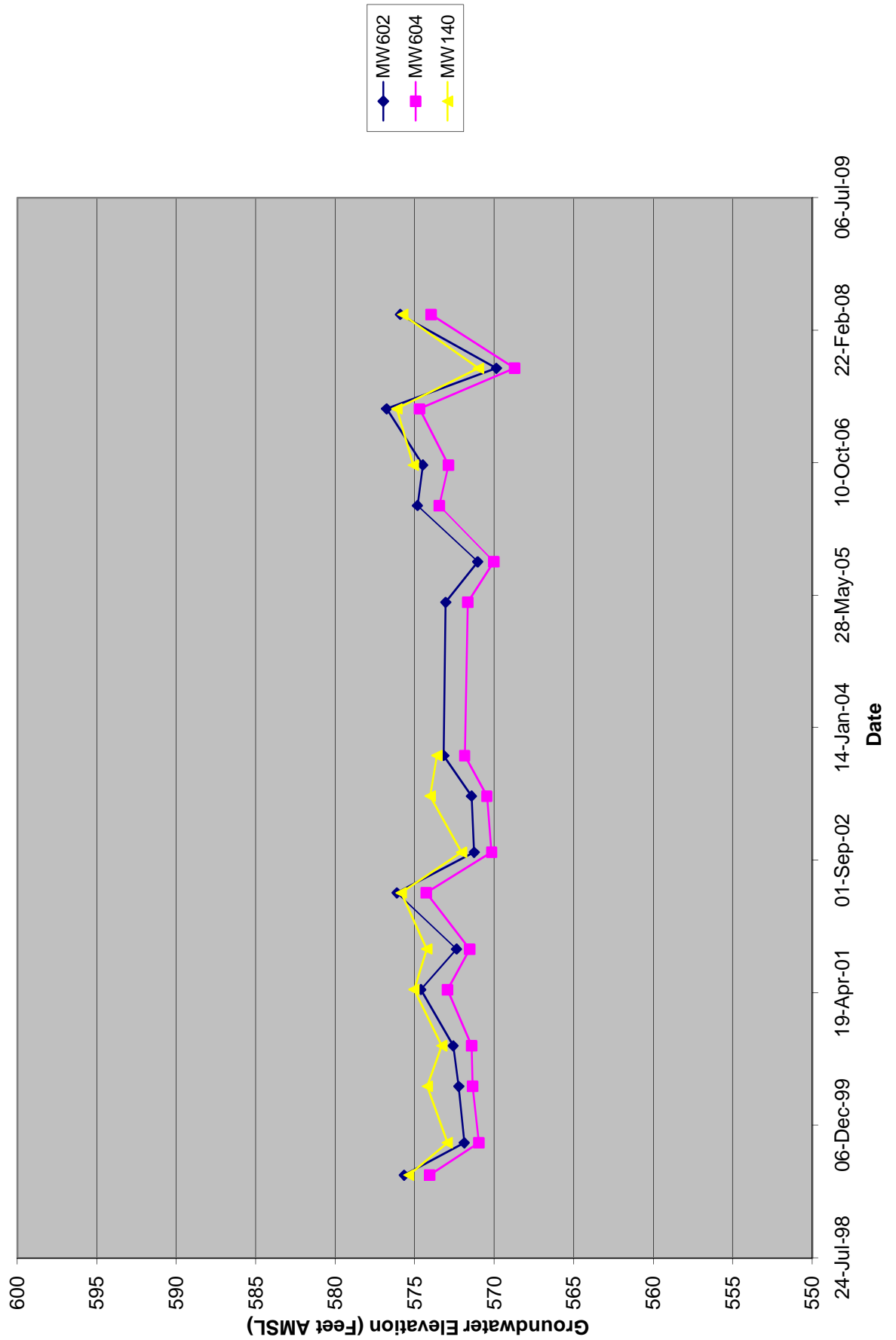
**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Historical Groundwater Elevations - Site L1 Bedrock & Combination Wells**



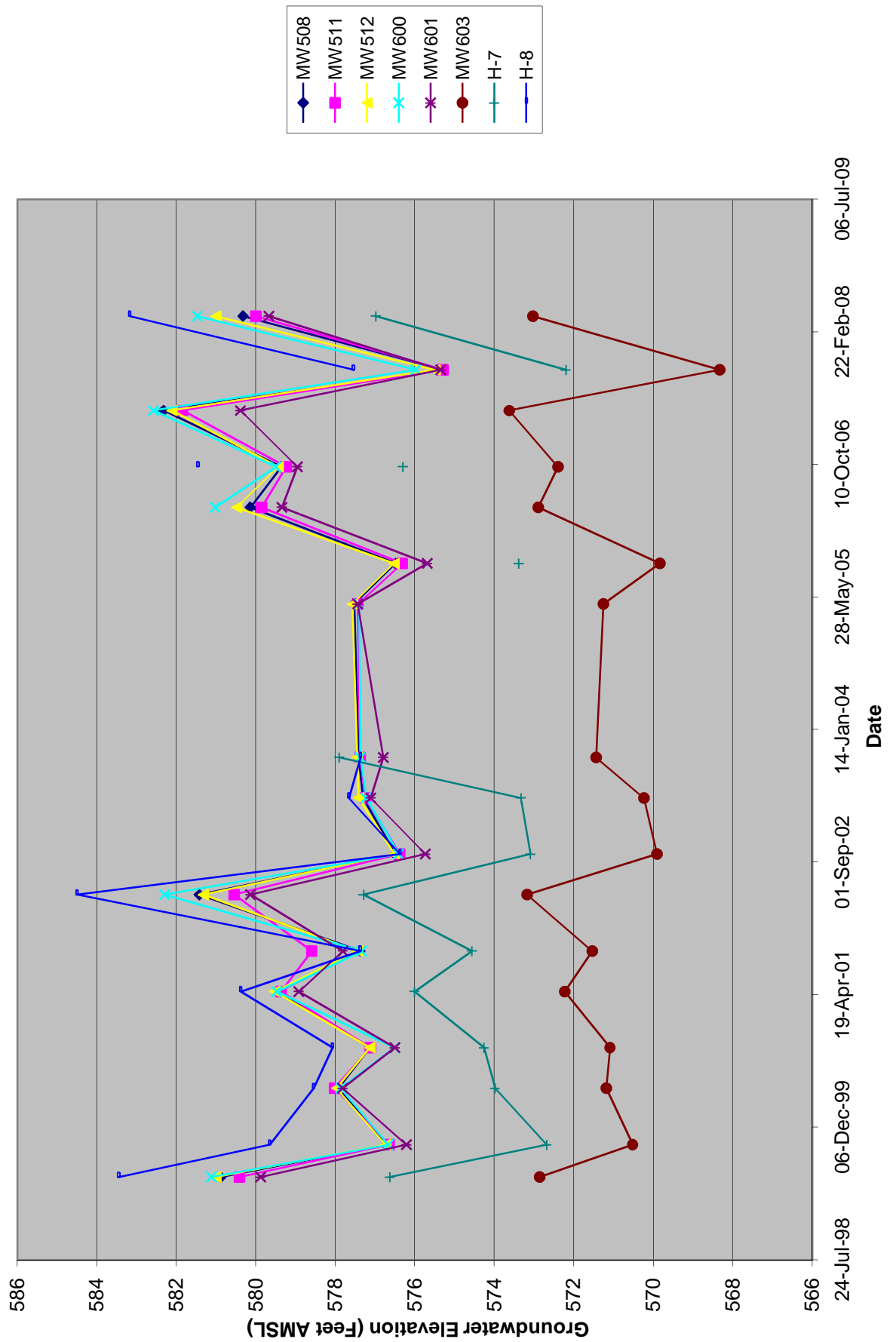
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Historical Groundwater Elevations - Site L1 Overburden Wells



**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Historical Groundwater Elevations - Site L14 Bedrock & Combination Wells**

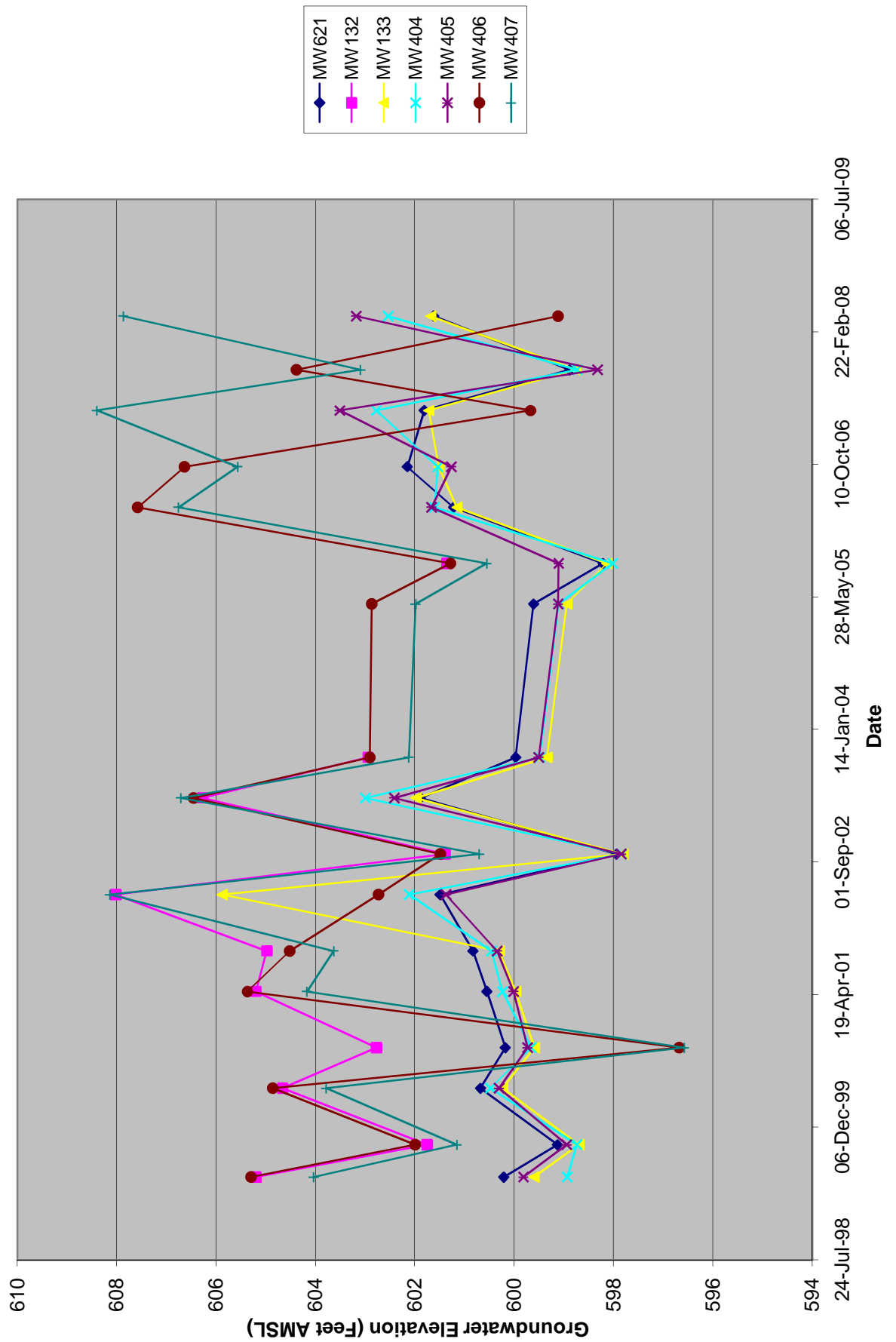


Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site L14 Overburden Wells

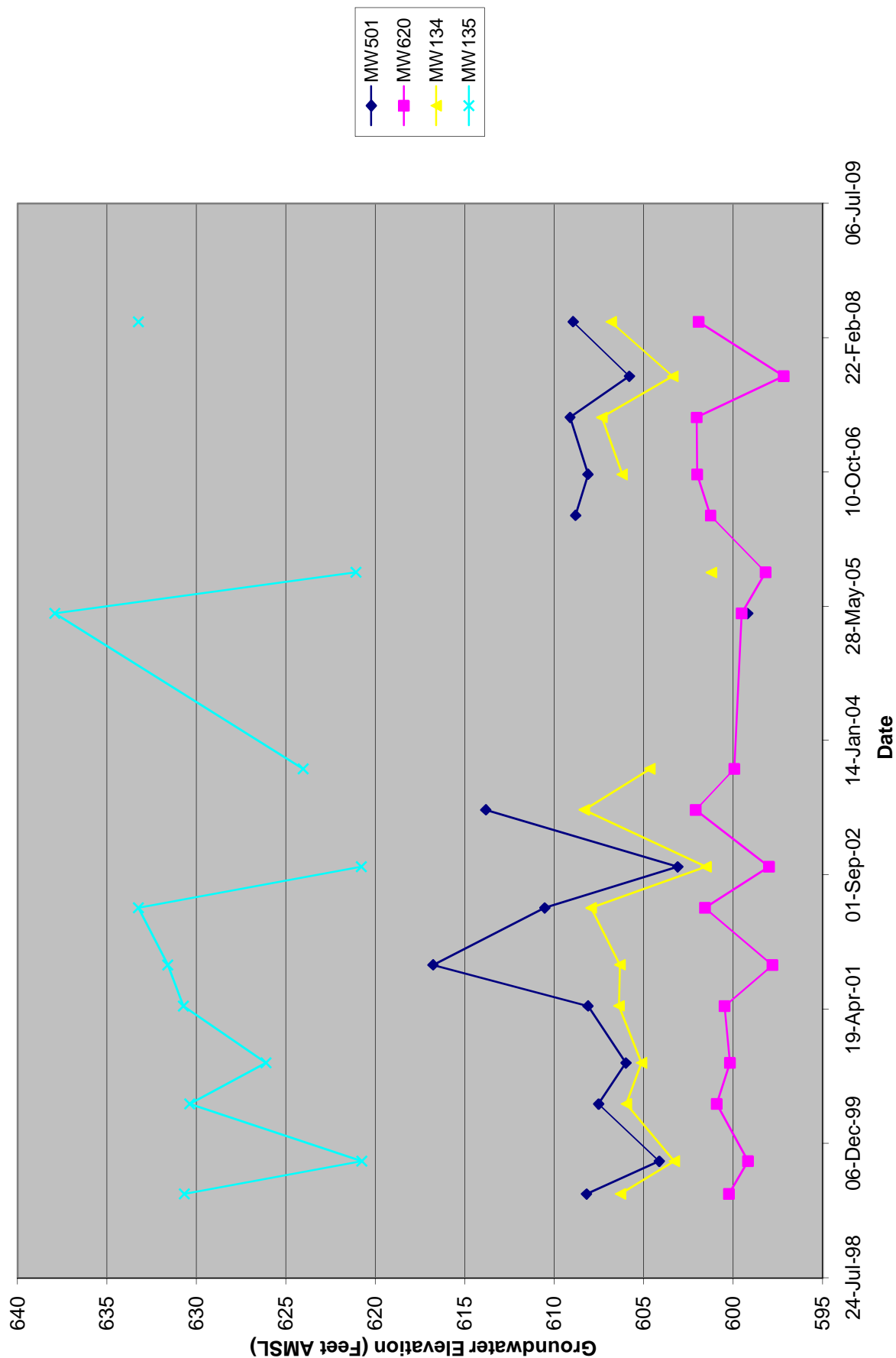




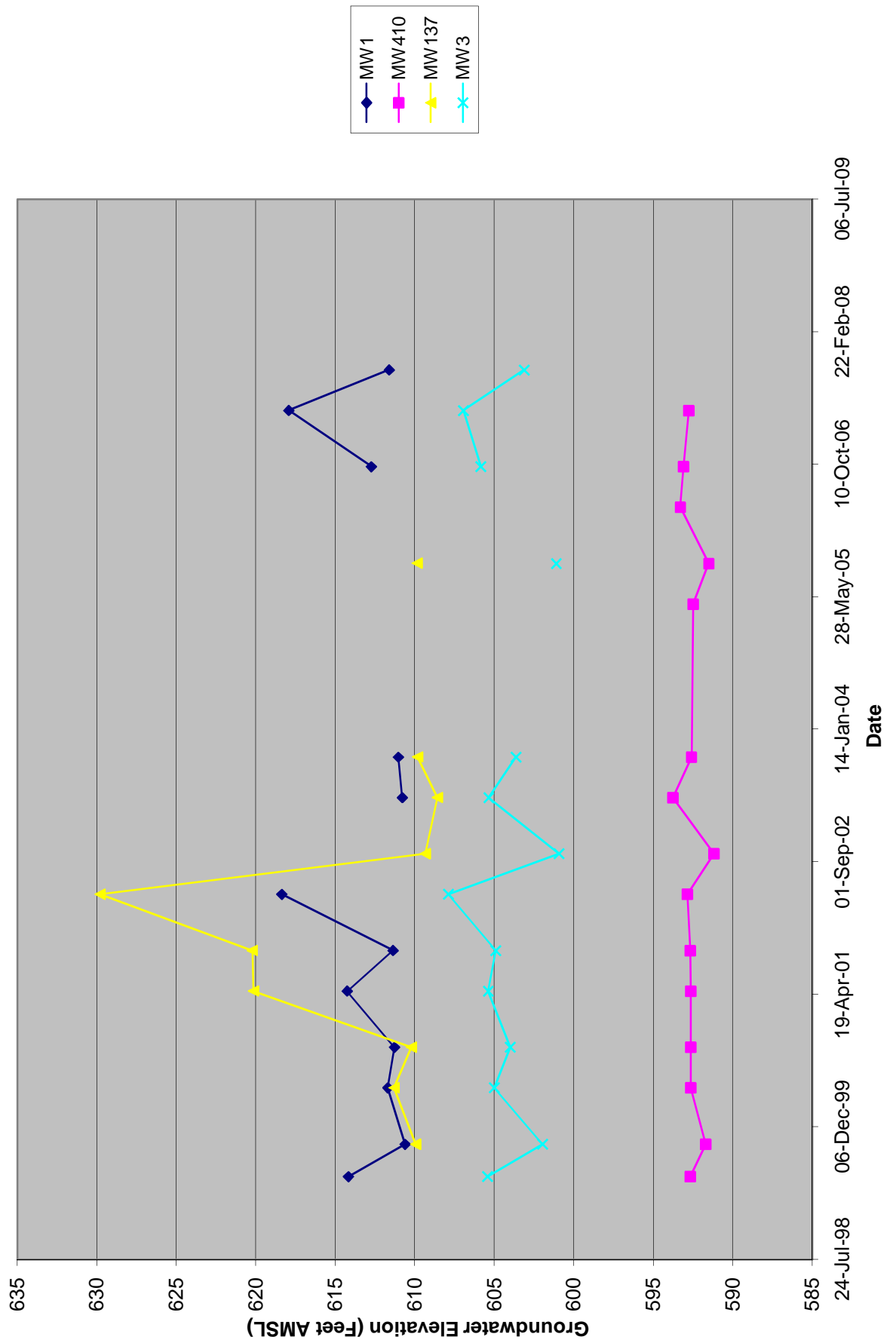
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site L2Bedrock & Combination Wells



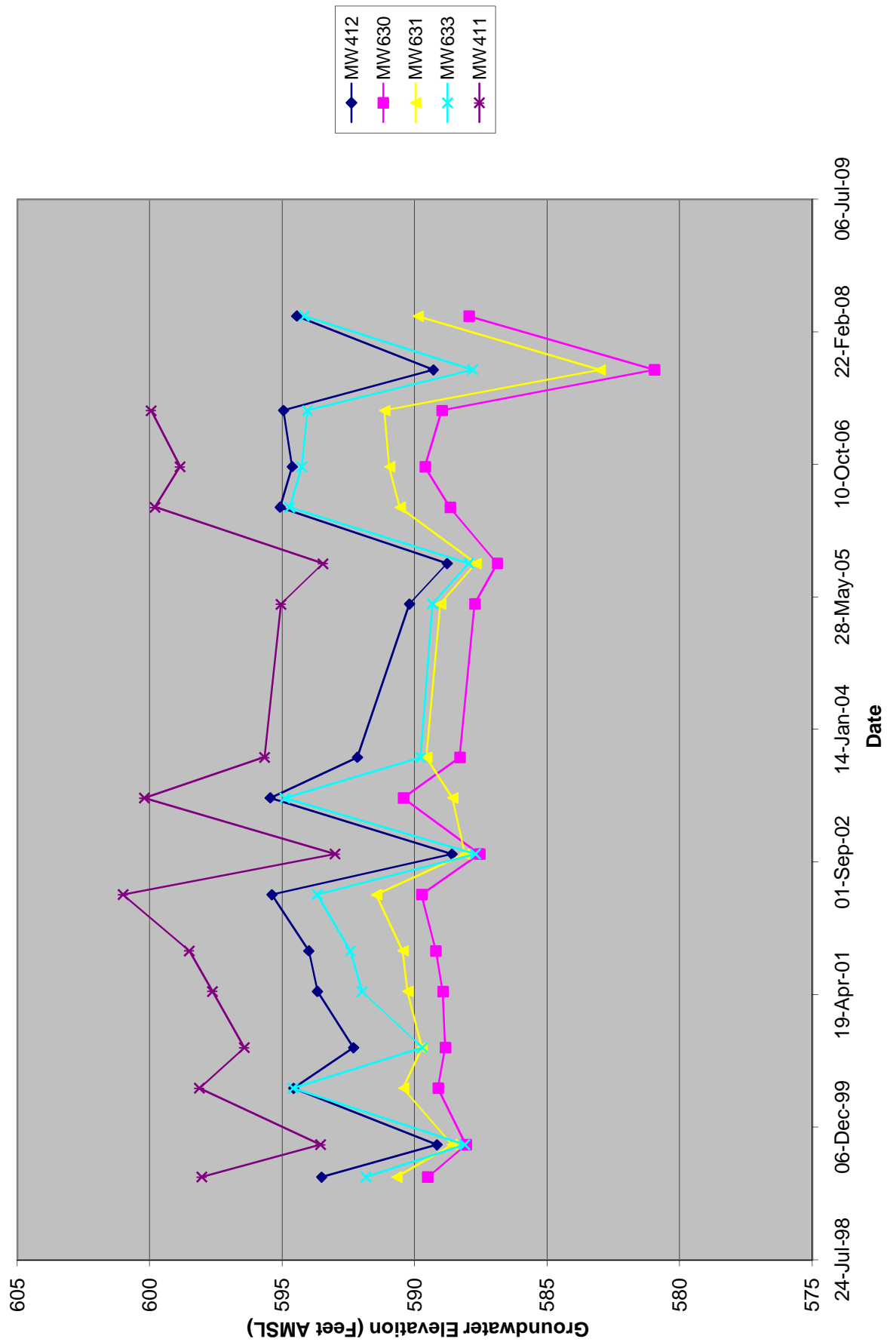
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Historical Groundwater Elevations - Site L2 Overburden Wells



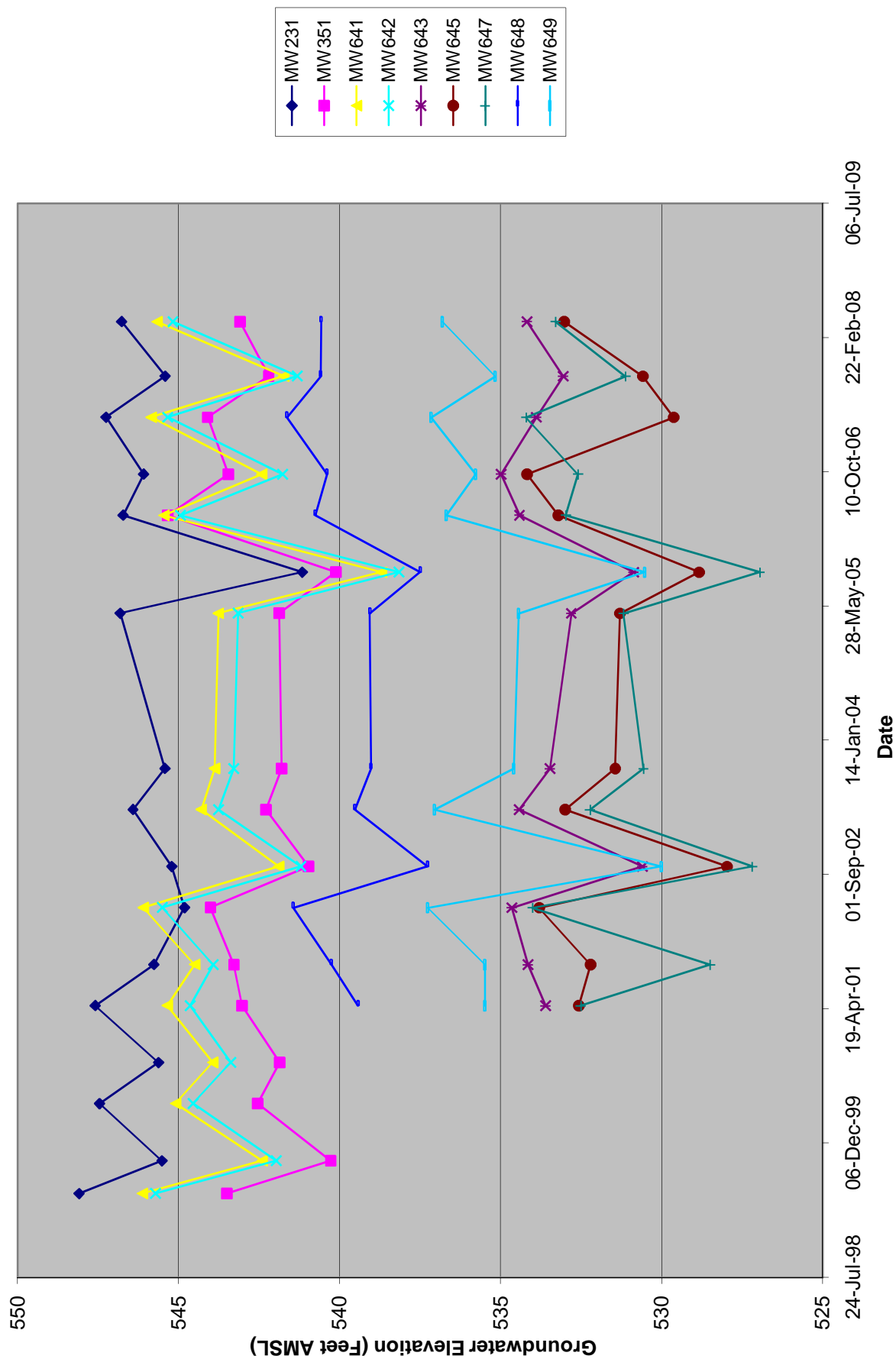
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Historical Groundwater Elevations - Site L3 Overburden Wells



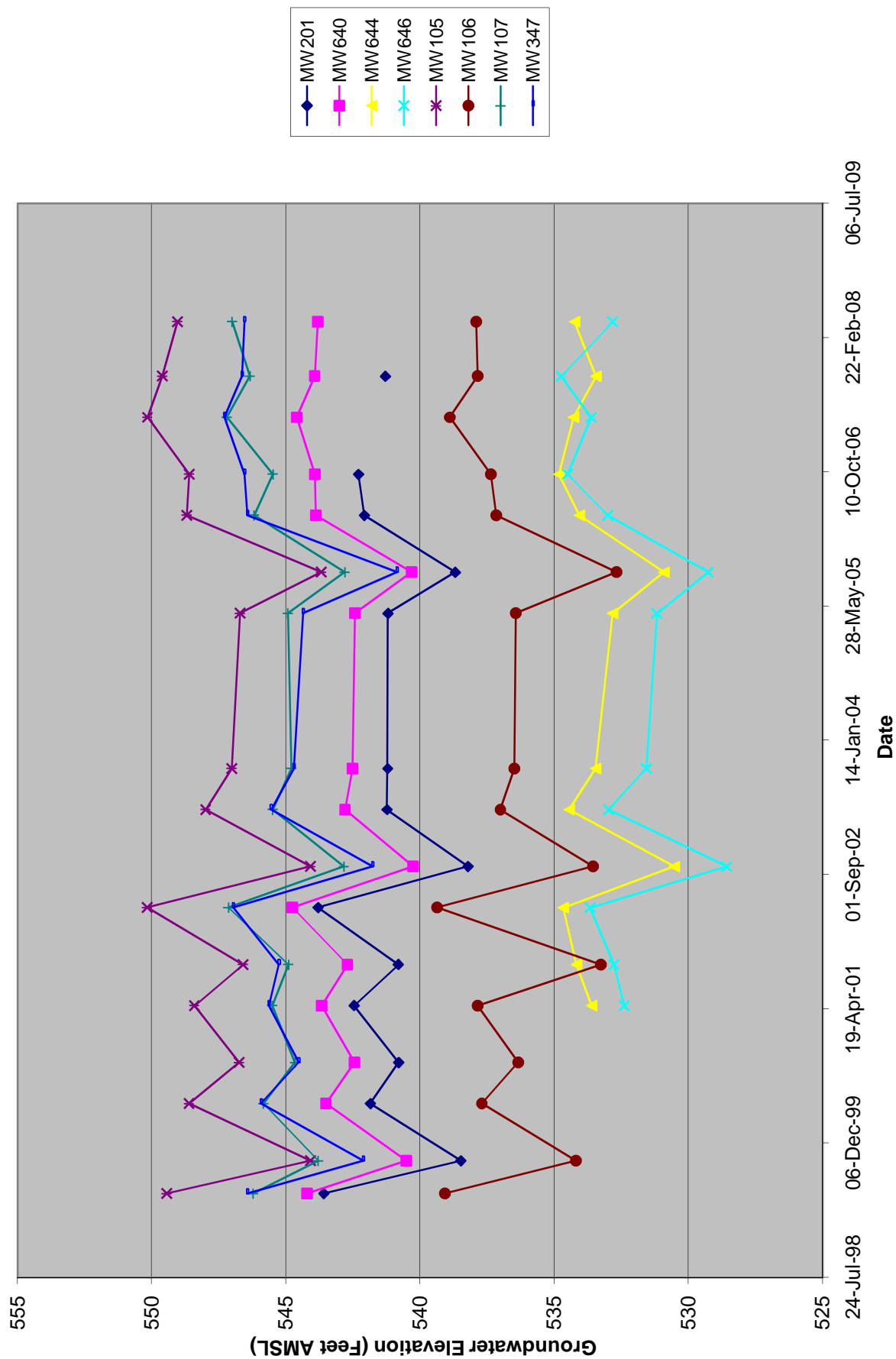
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site L3 Bedrock & Combination Wells



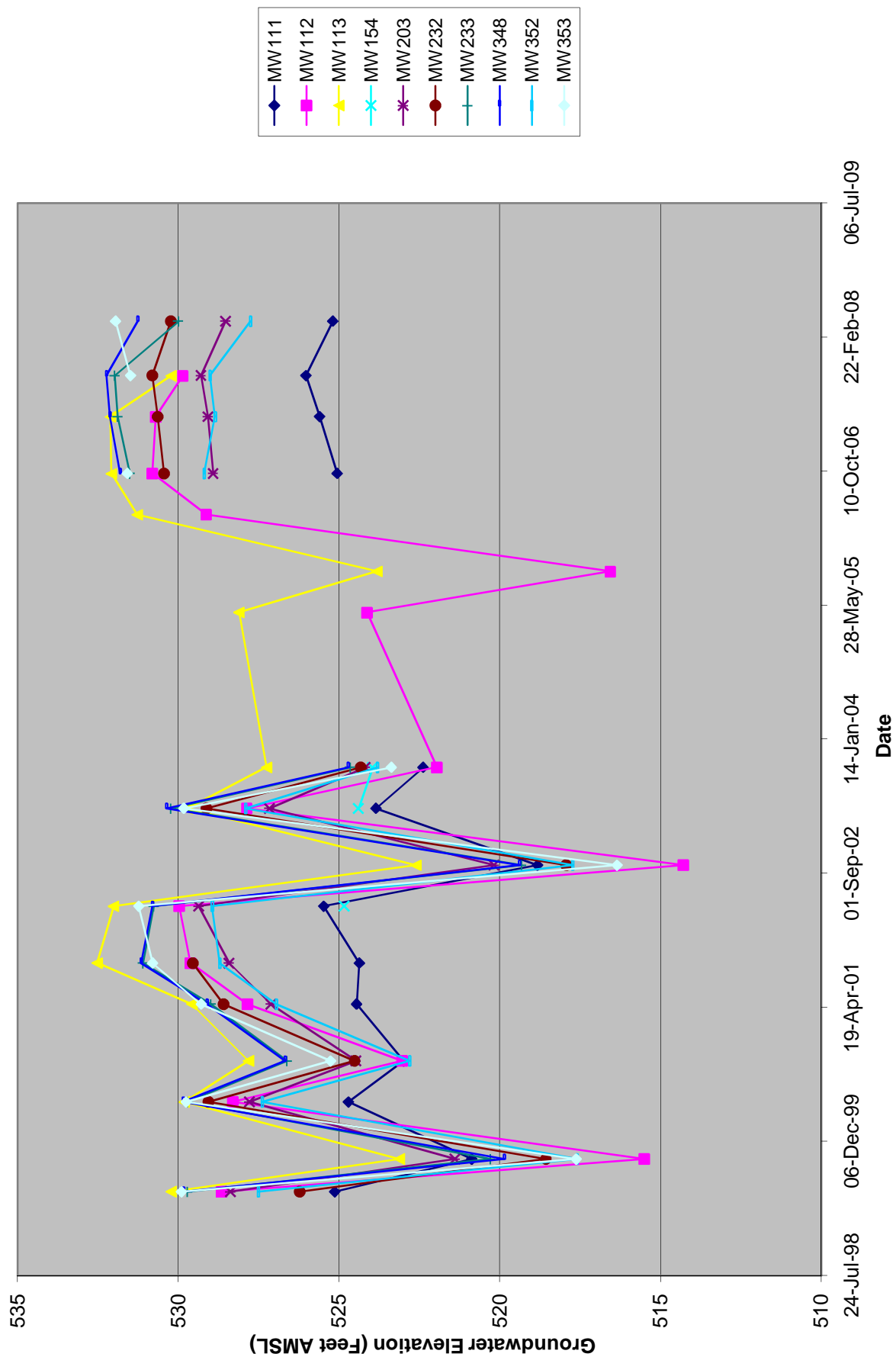
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Historical Groundwater Elevations - Site M1 Overburden Wells



**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Historical Groundwater Elevations - Site M1 Bedrock & Combination Wells**

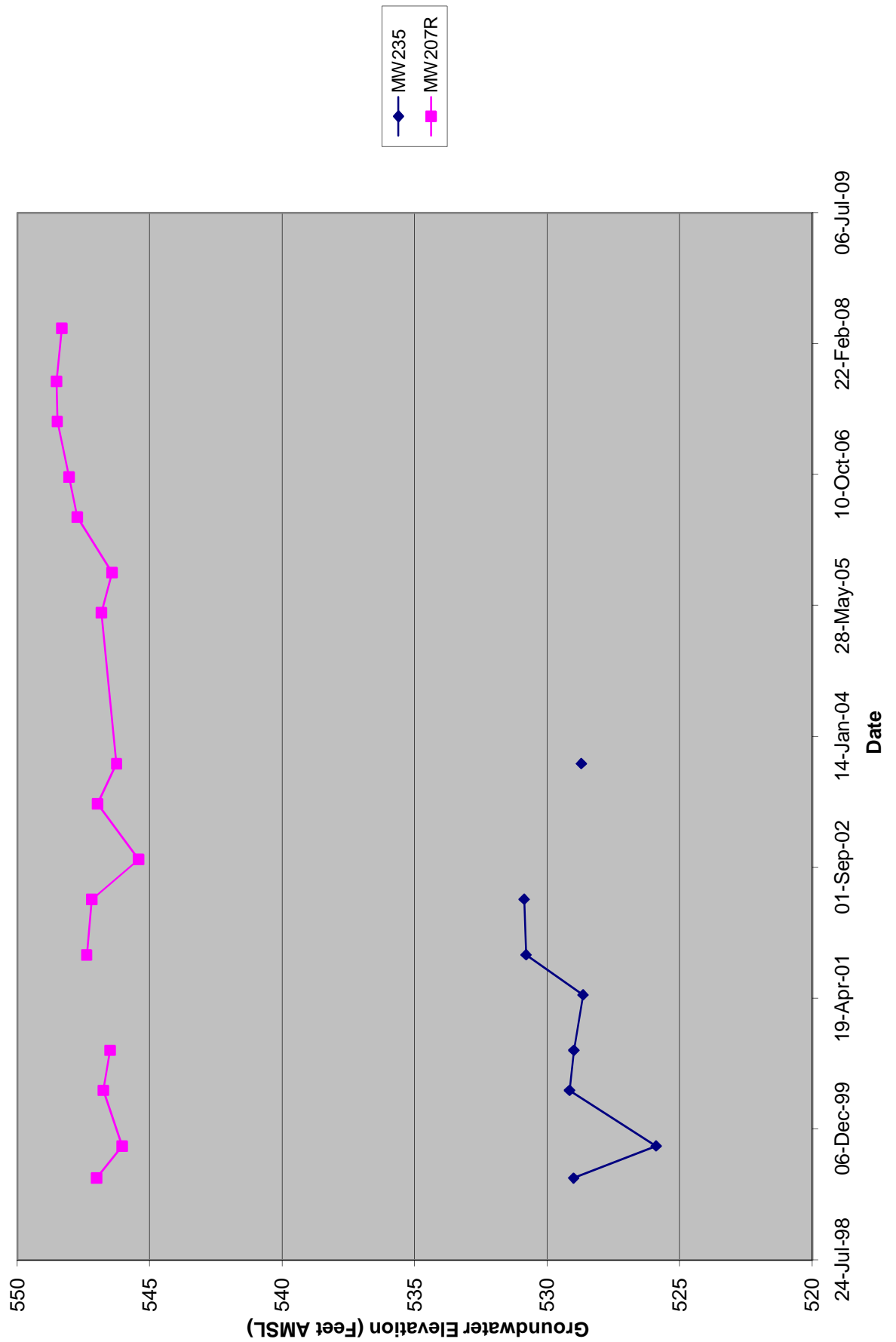


Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site M3 Bedrock & Combination Wells

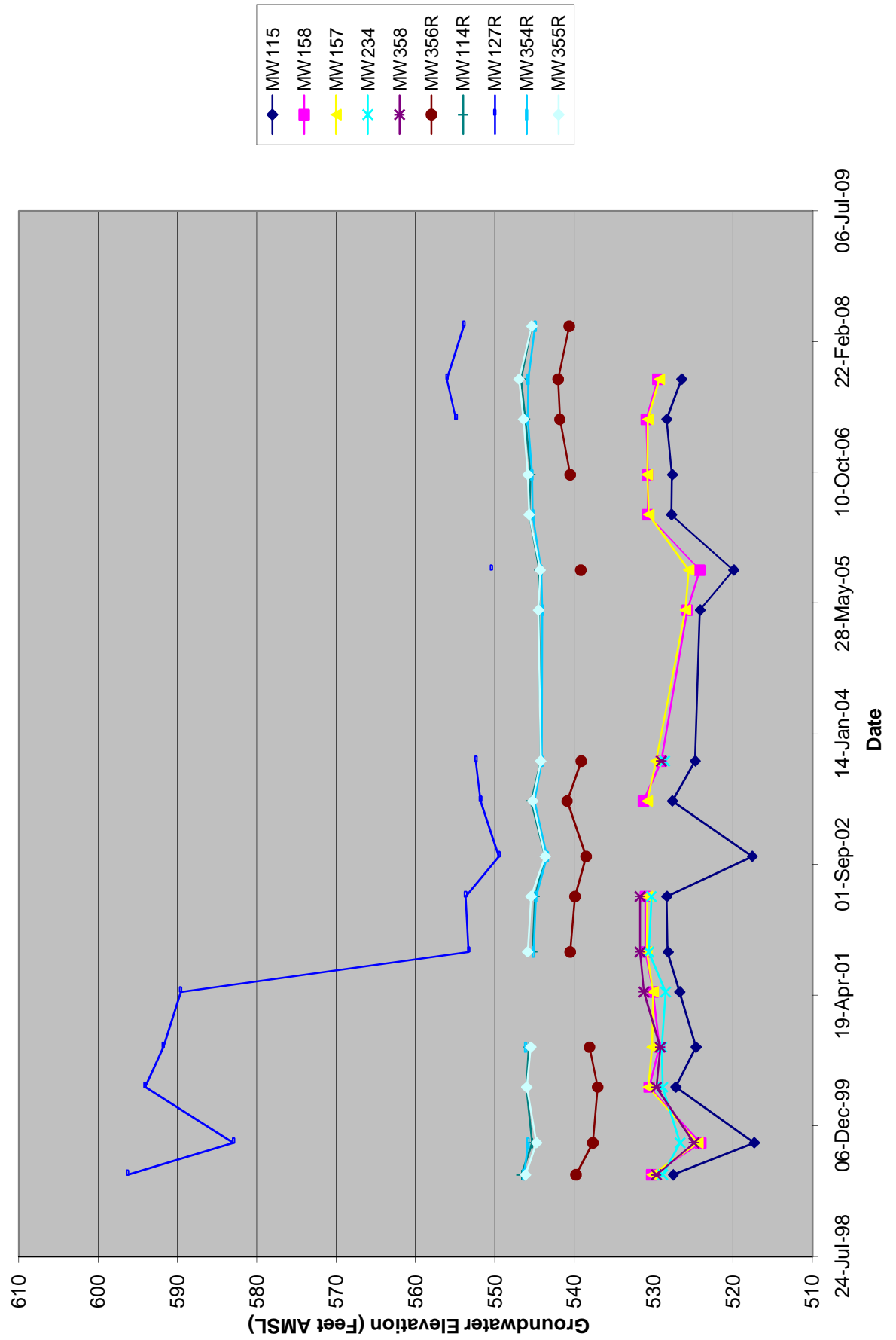




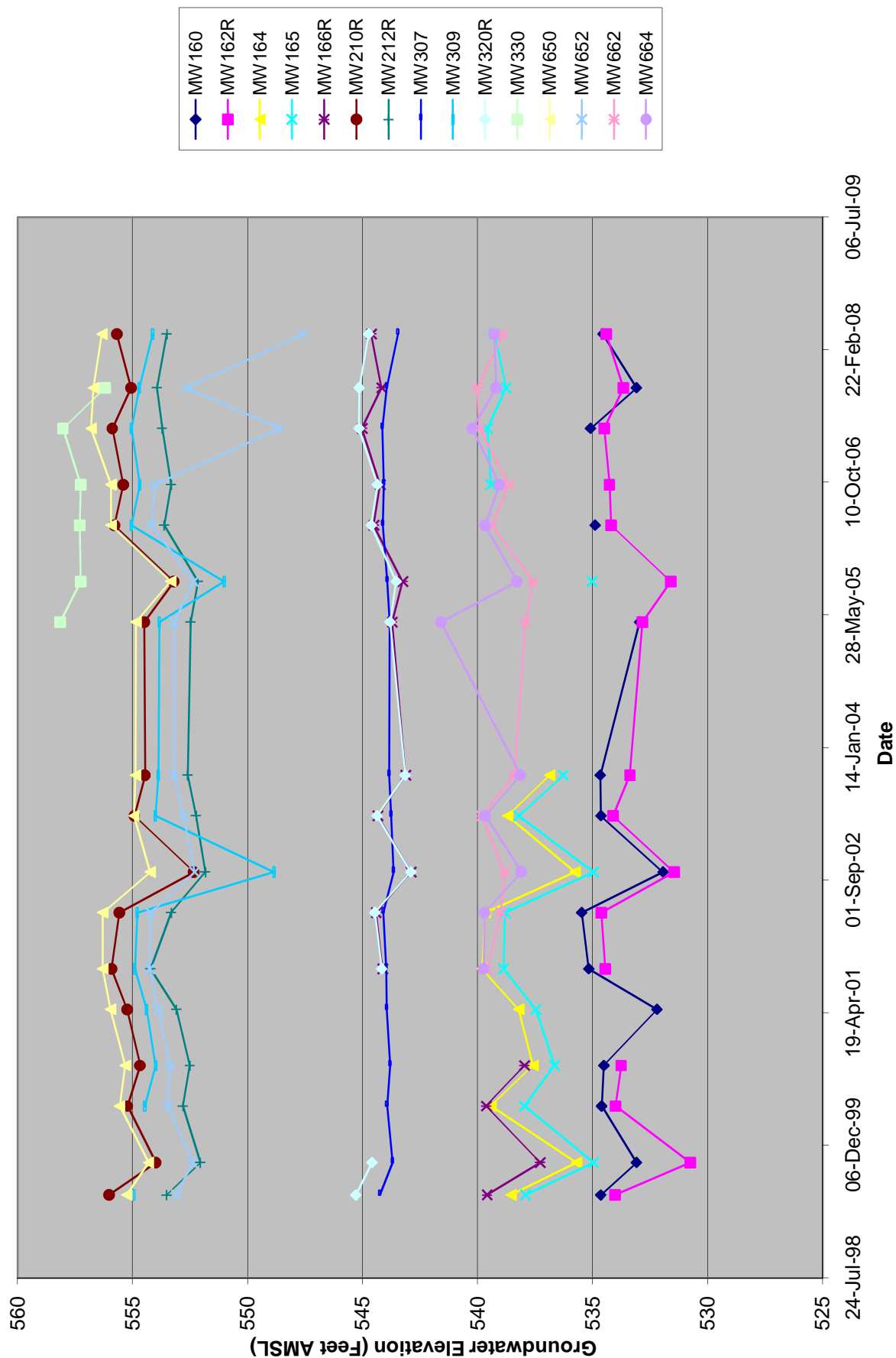
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Historical Groundwater Elevations - Site M4 and M5 Overburden Wells



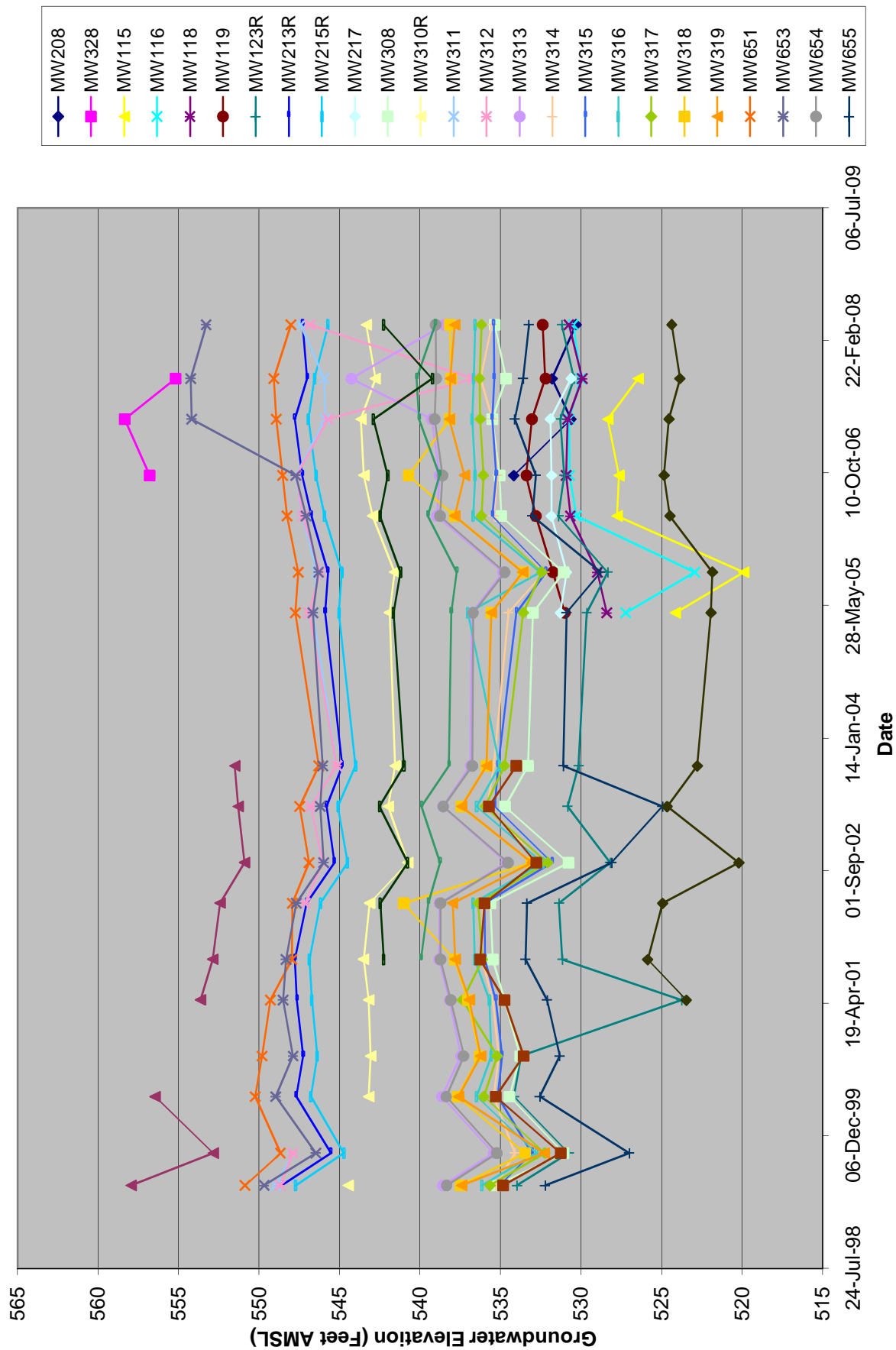
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Joliet Army Ammunition Plant - Wilmington, Illinois  
Historical Groundwater Elevations - Site M4and5 Combination Wells



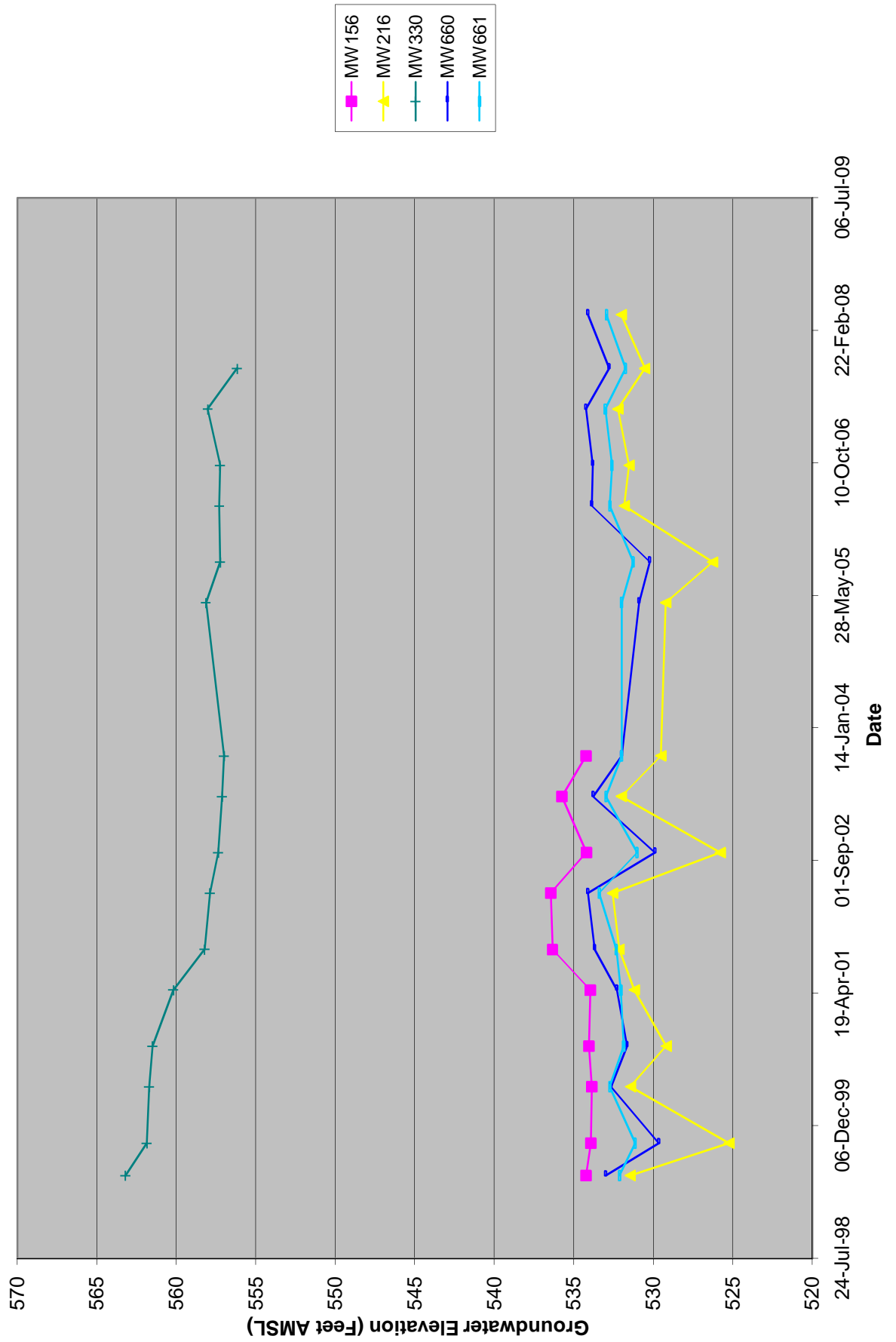
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Historical Groundwater Elevations - Site M6 Overburden Wells



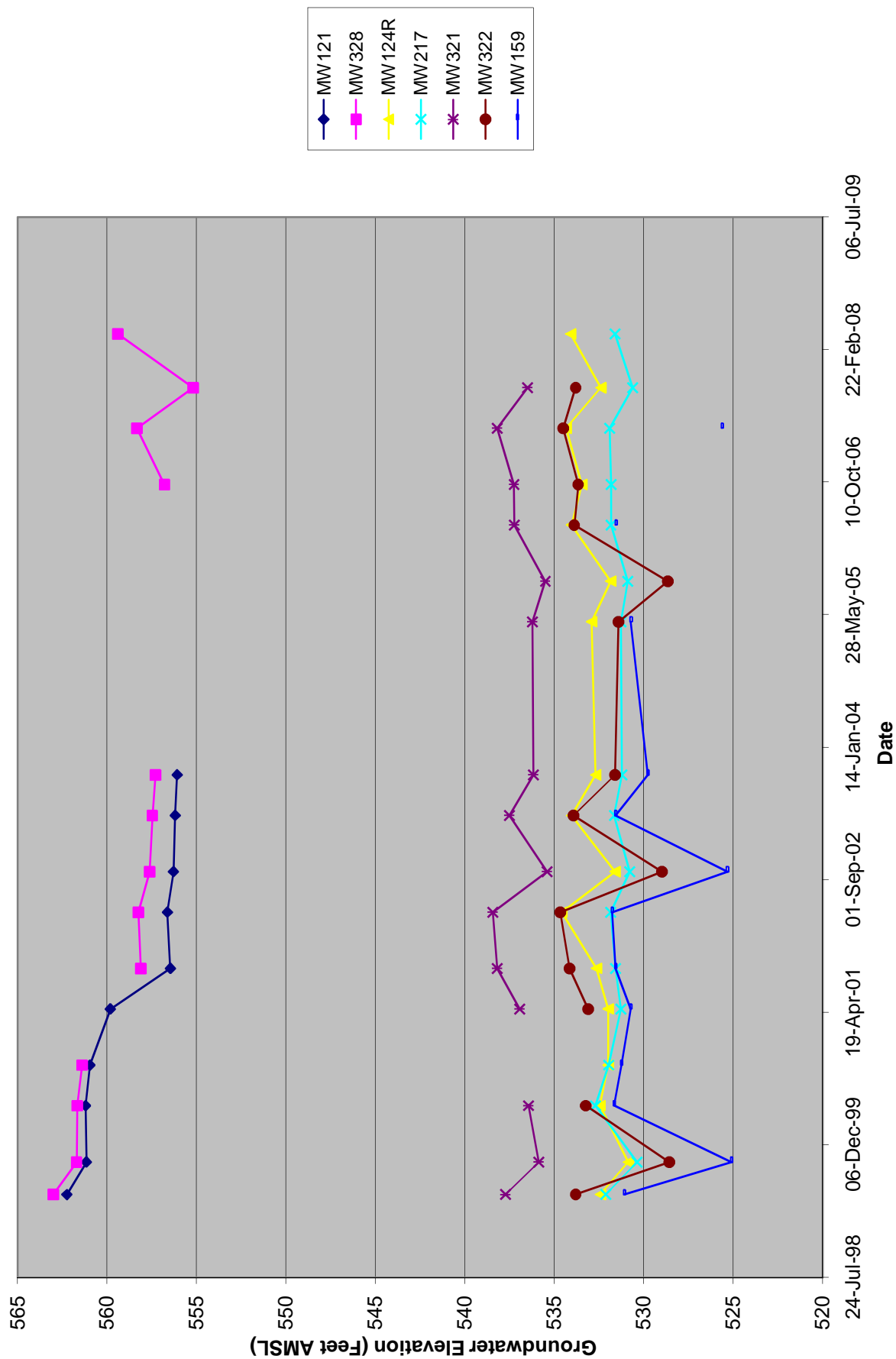
**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Historical Groundwater Elevations - Site M6 Bedrock & Combination Wells**



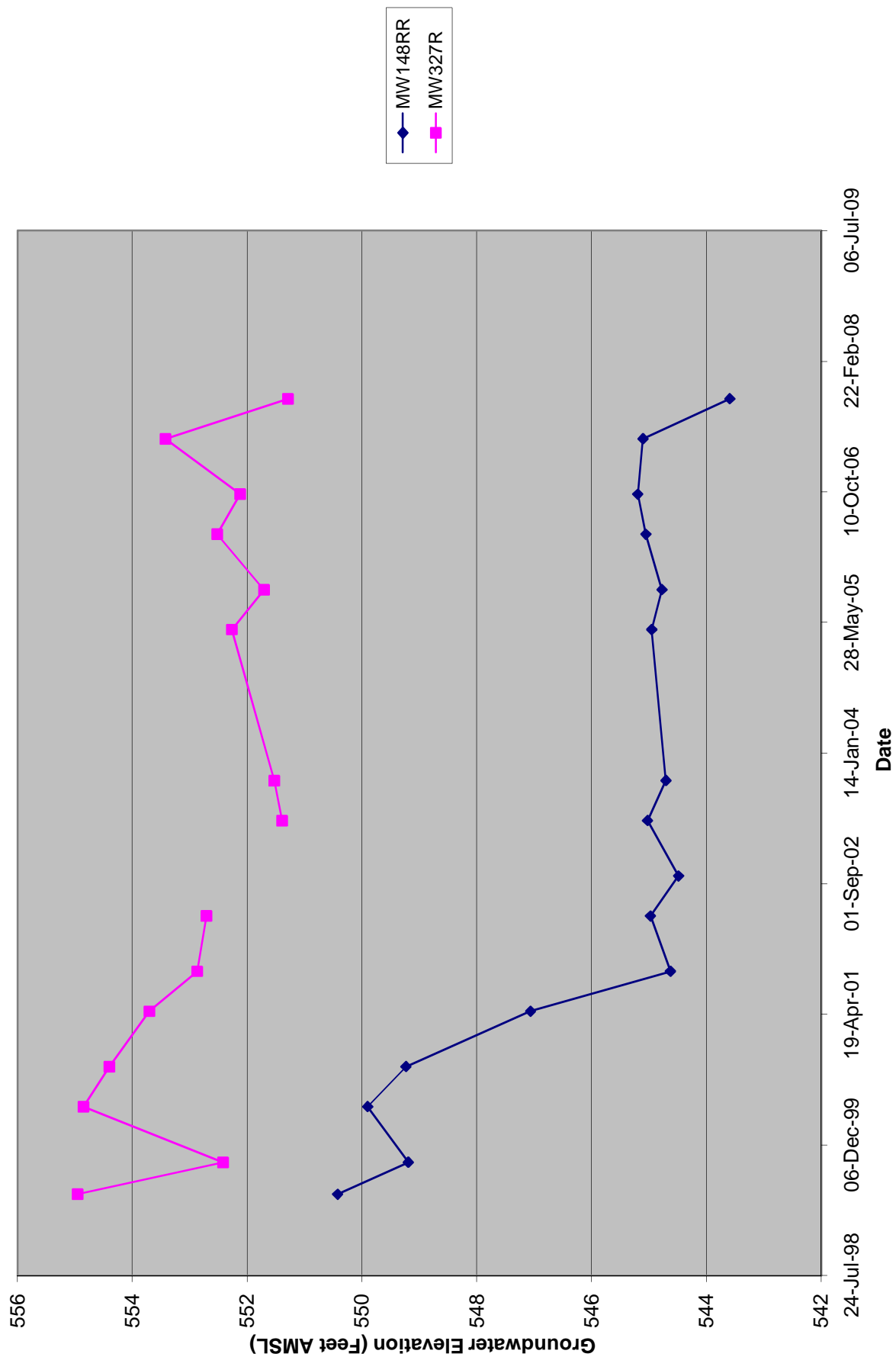
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site M7 Overburden Wells



Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site M7 Bedrock & Combination Wells

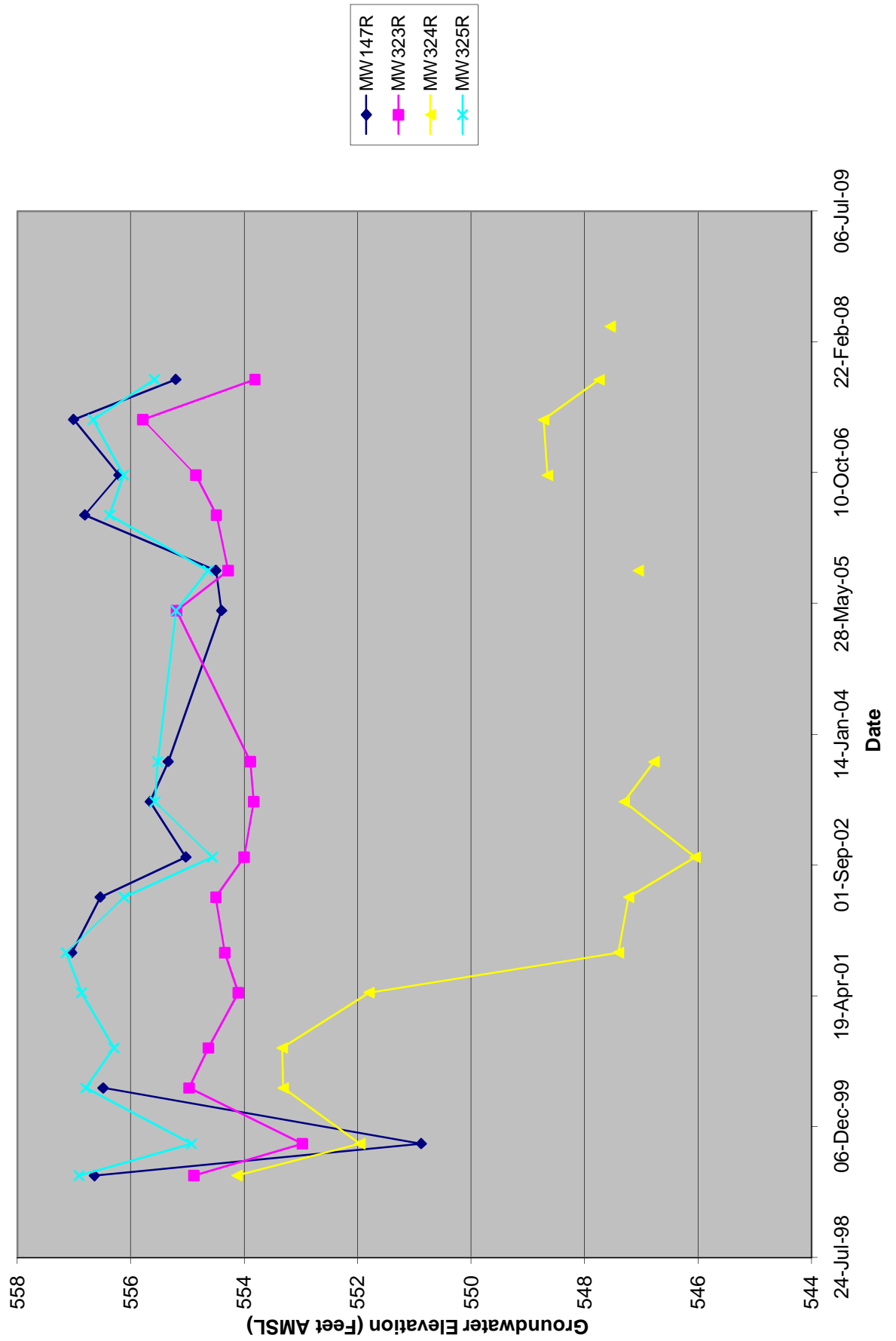


Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site M8 Bedrock & Combination Wells

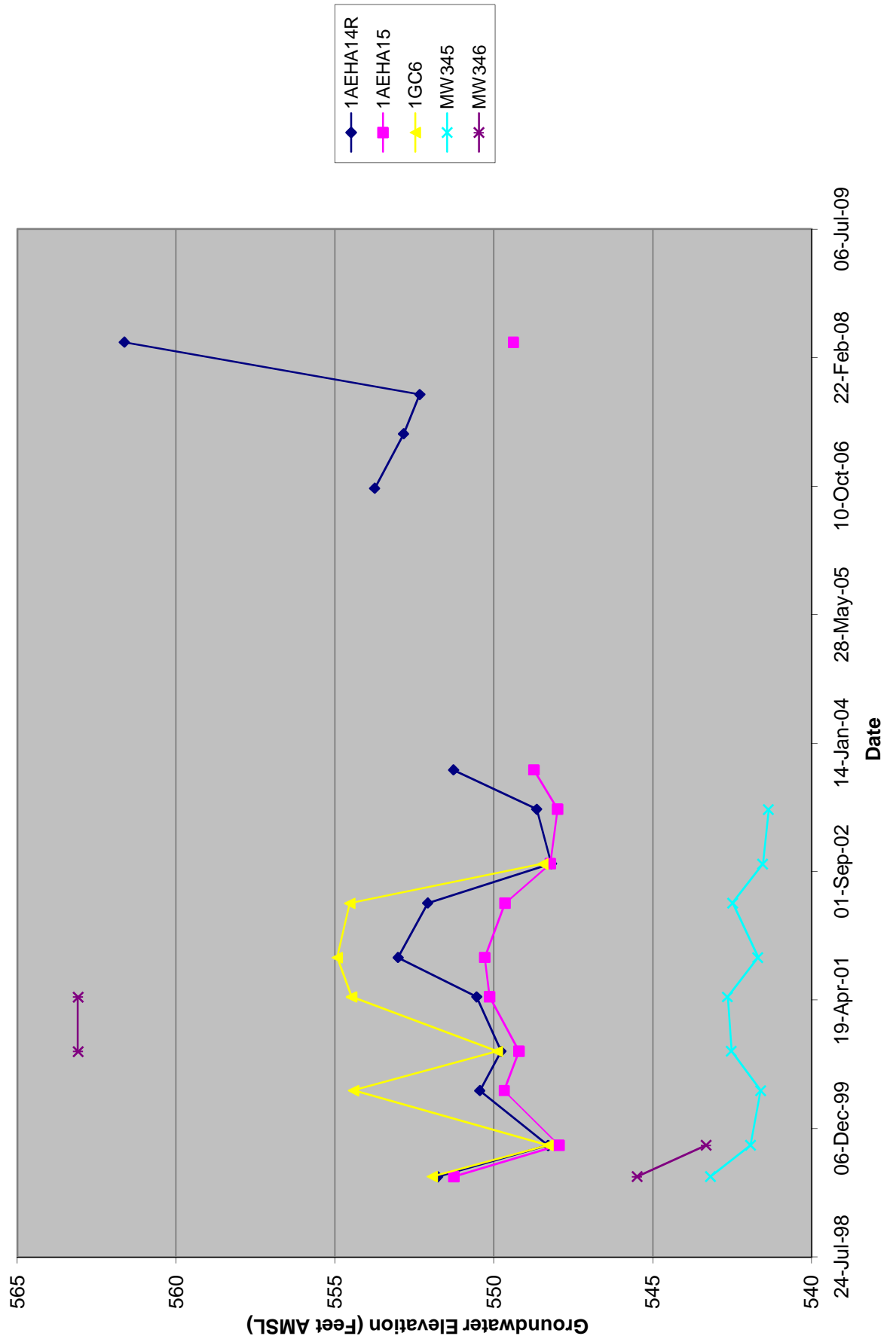




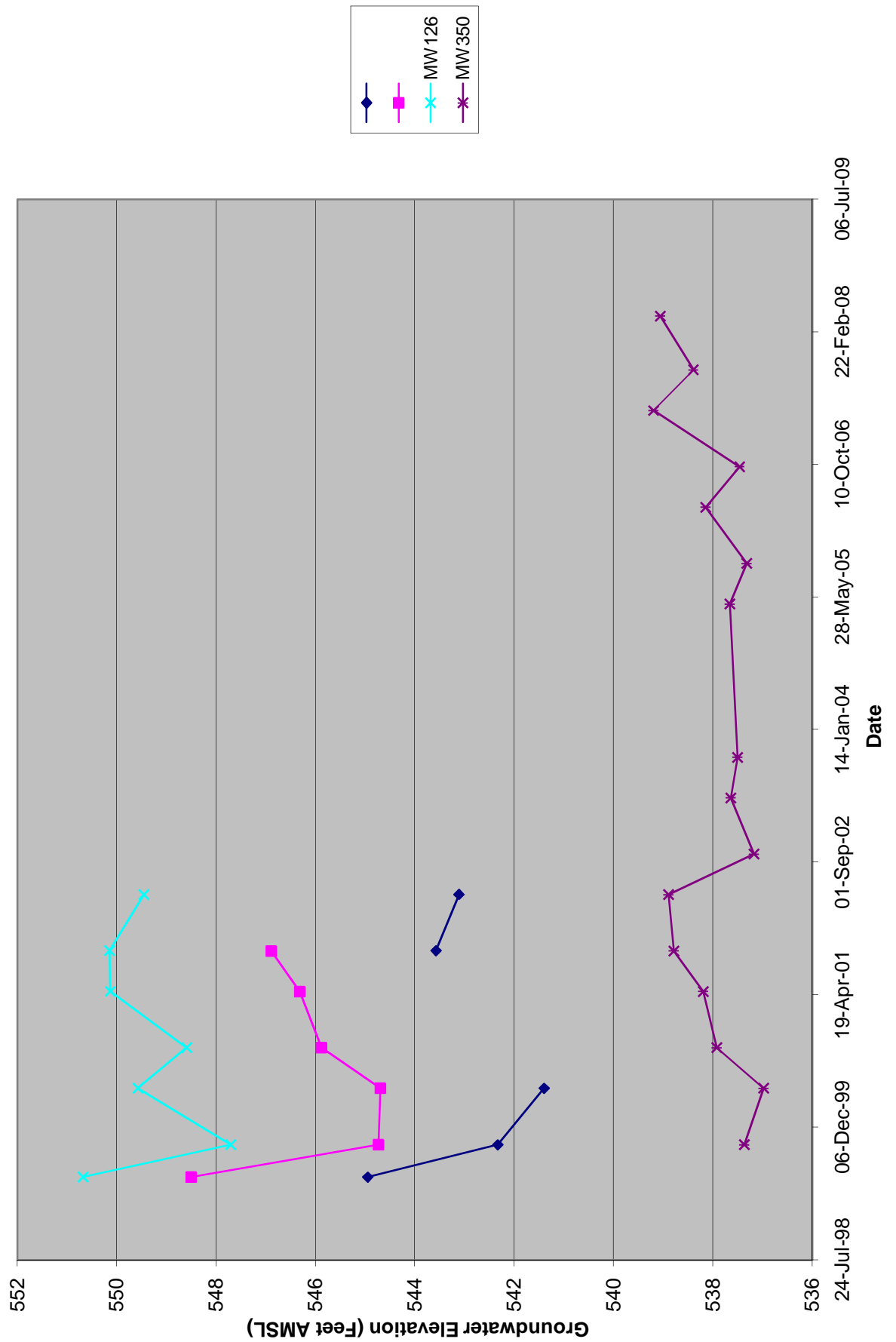
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site M8 Overburden Wells



Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site M13 Overburden Wells



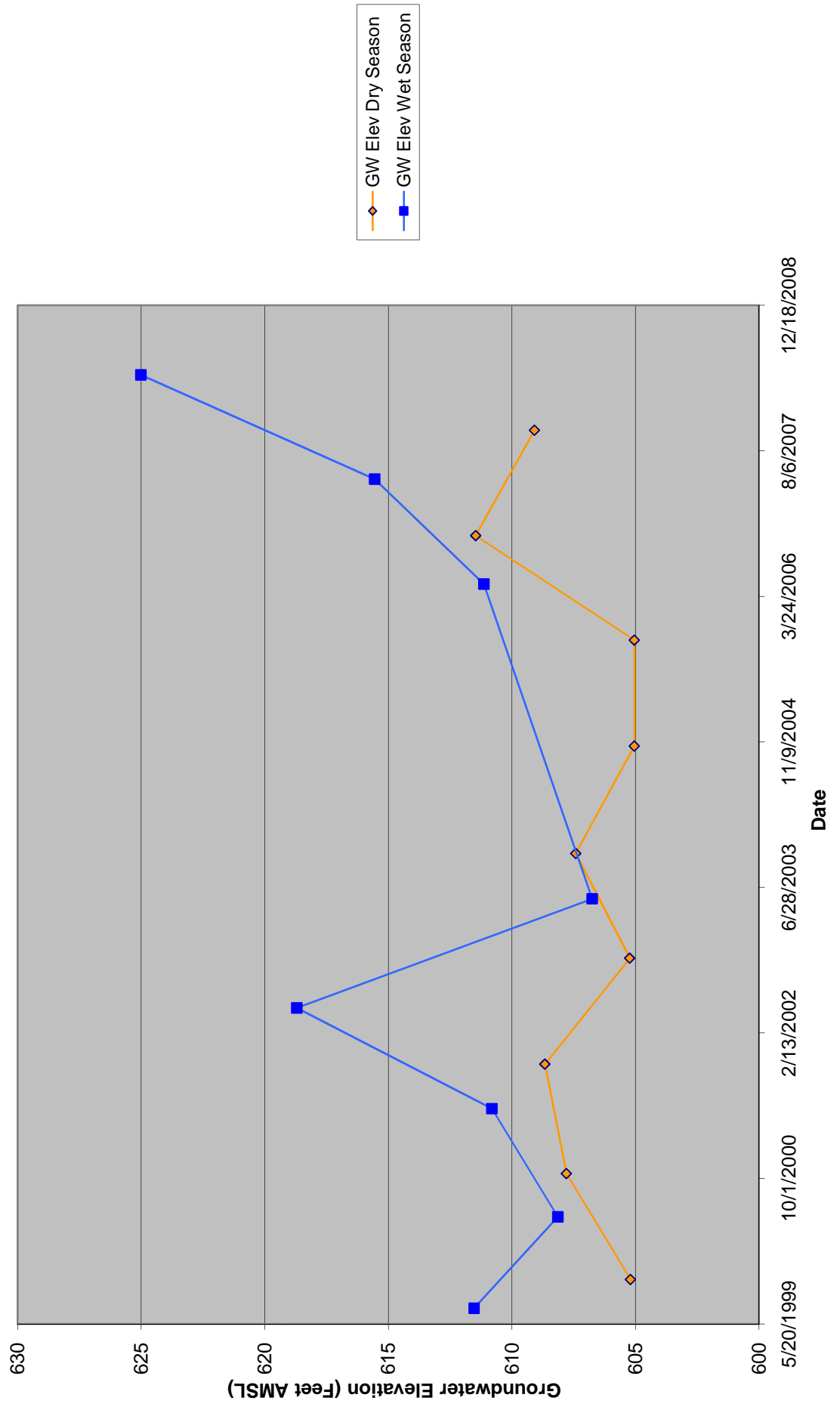
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Historical Groundwater Elevations - Site M13 Bedrock & Combination Wells



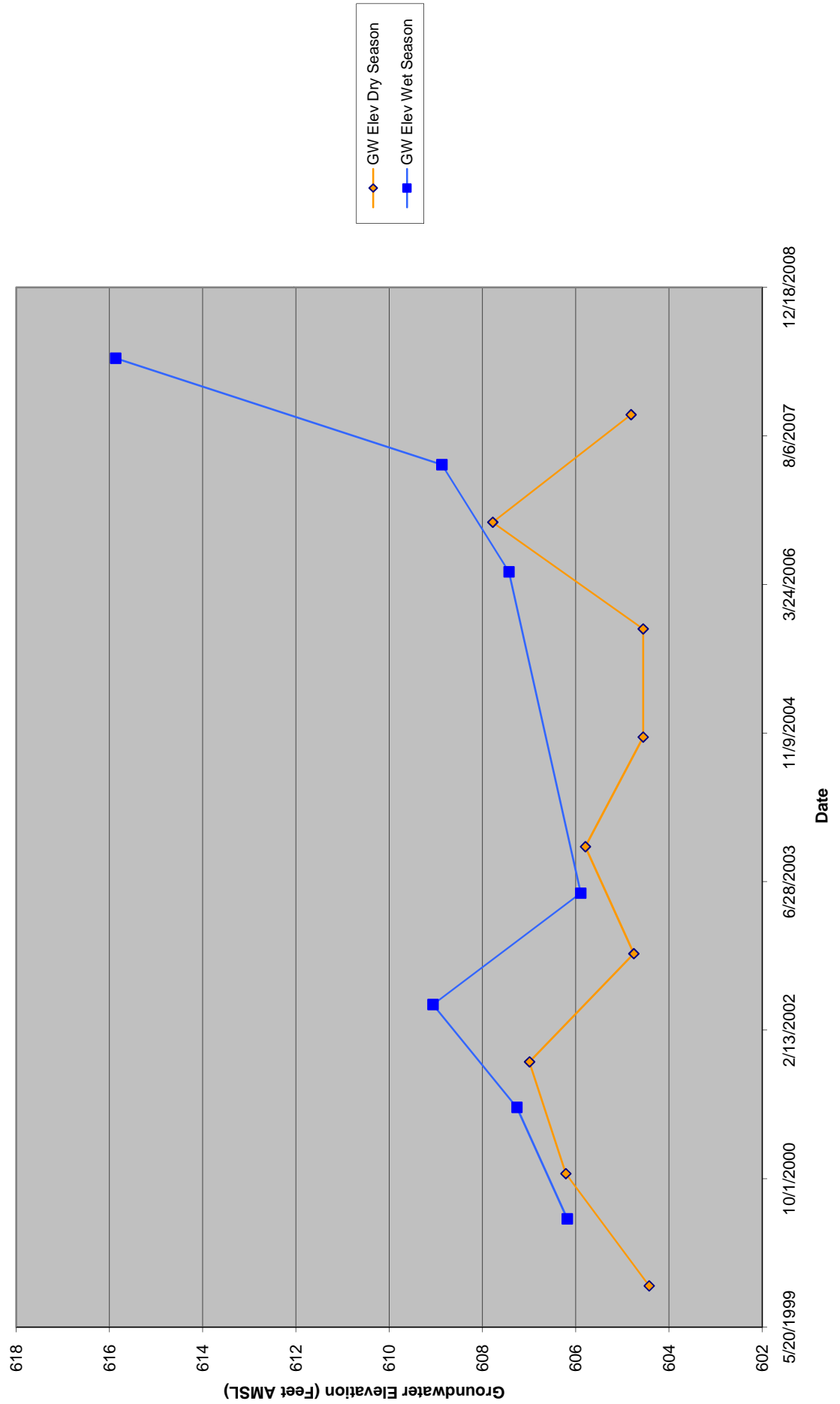
## **Attachment 6**

Data Plots - Seasonal Groundwater Elevation Relationship

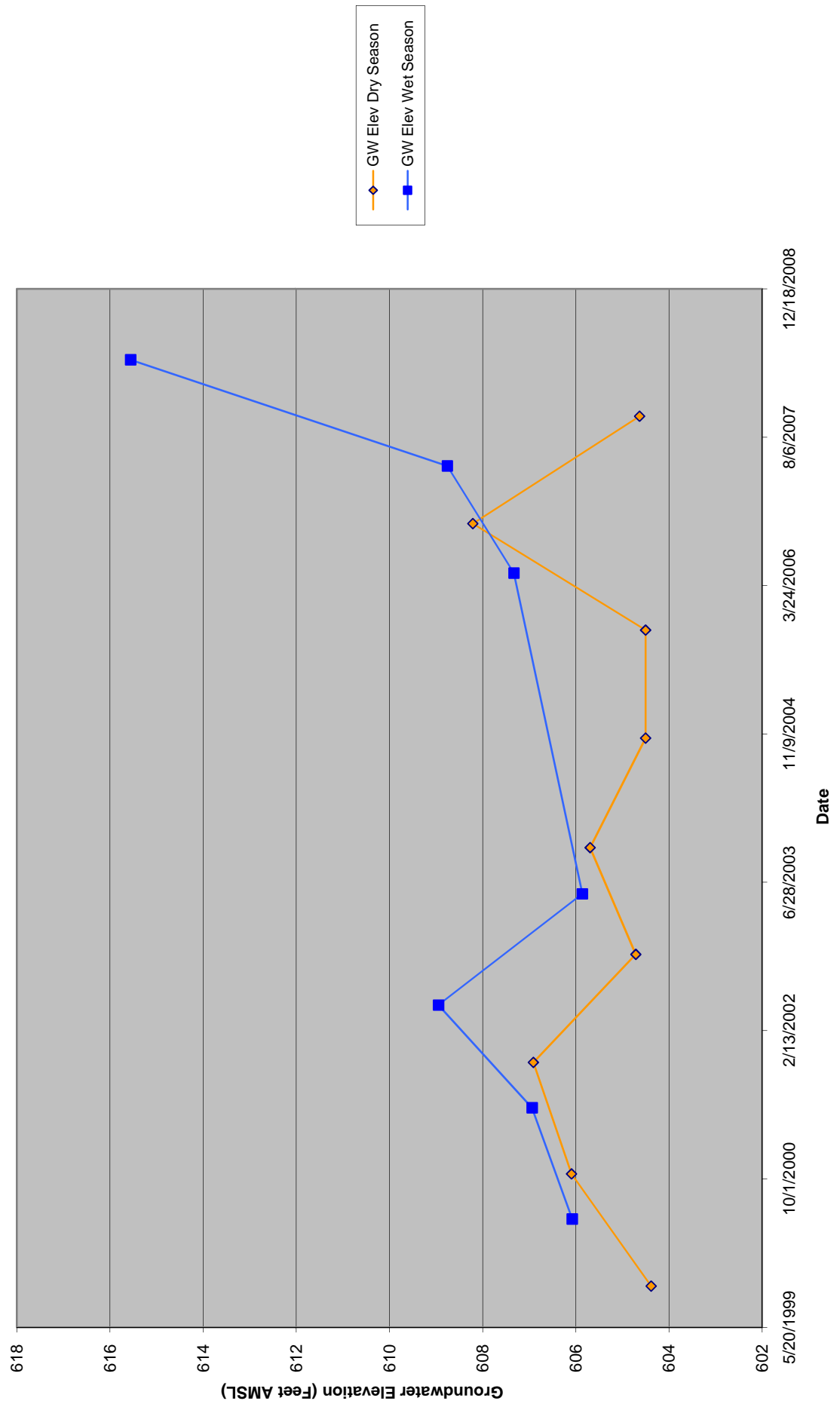
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site L1 MW 131



**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Seasonal Groundwater Elevation Relationships - Site L1 MW 172**

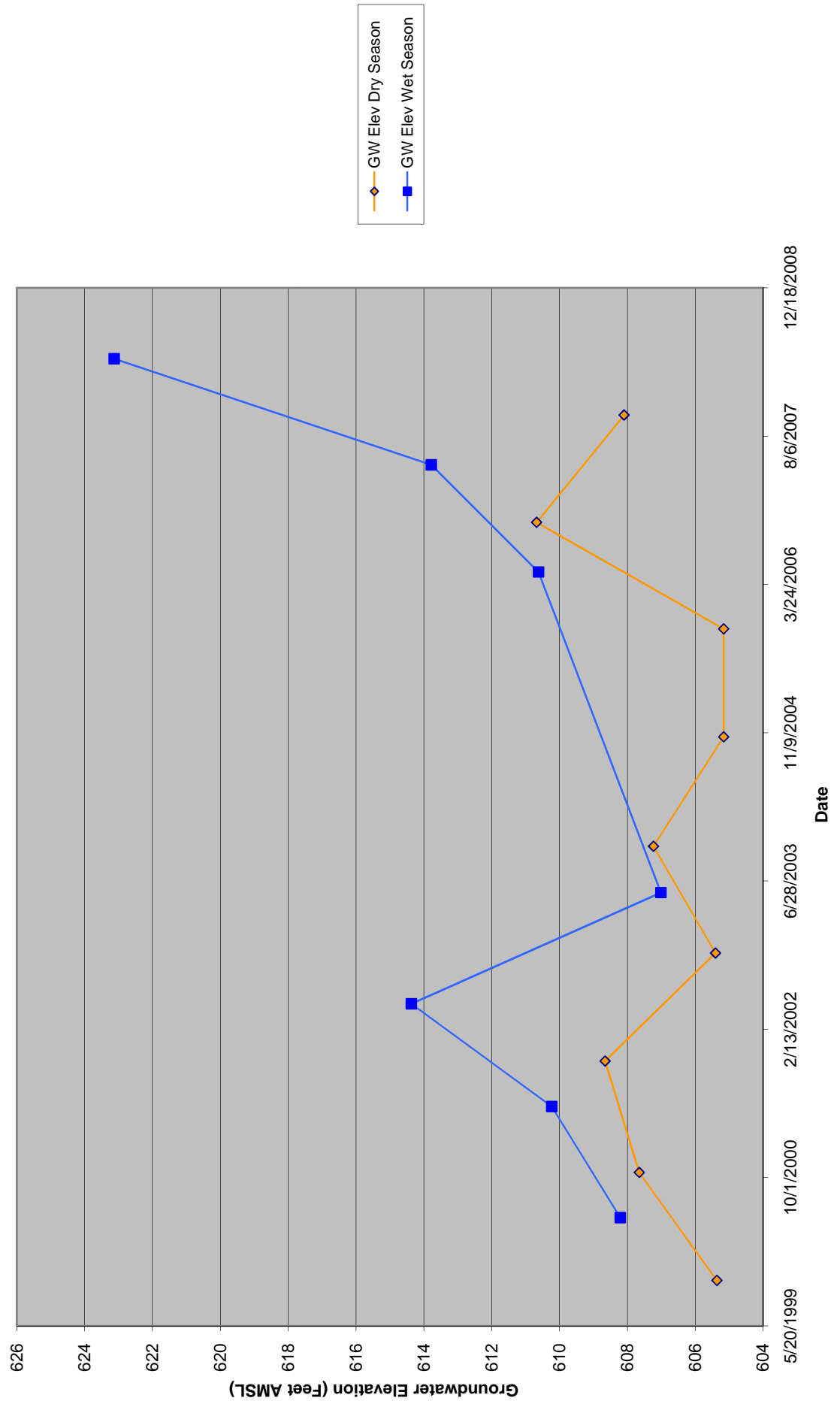


**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Seasonal Groundwater Elevation Relationships - Site L1 MW 173**

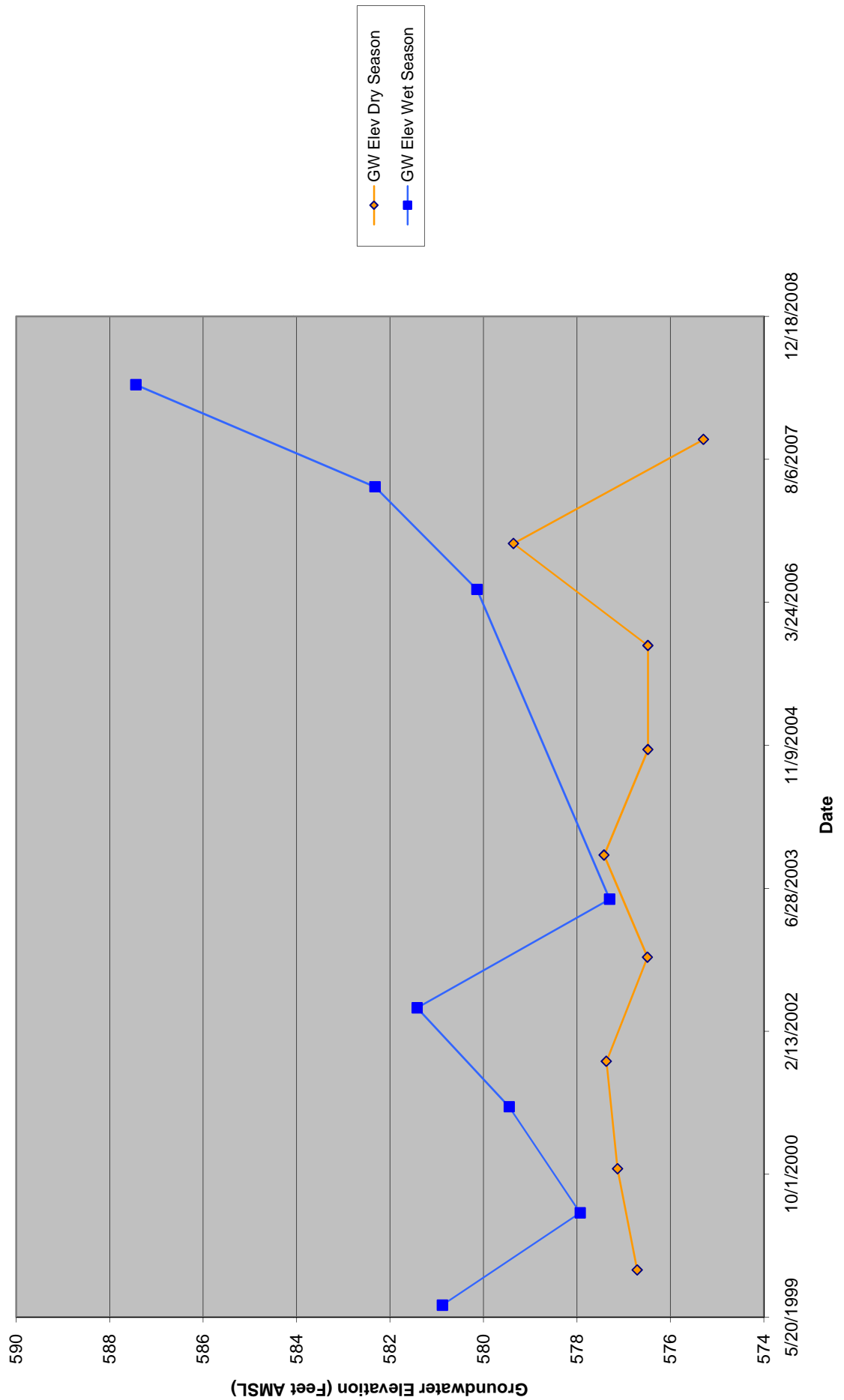




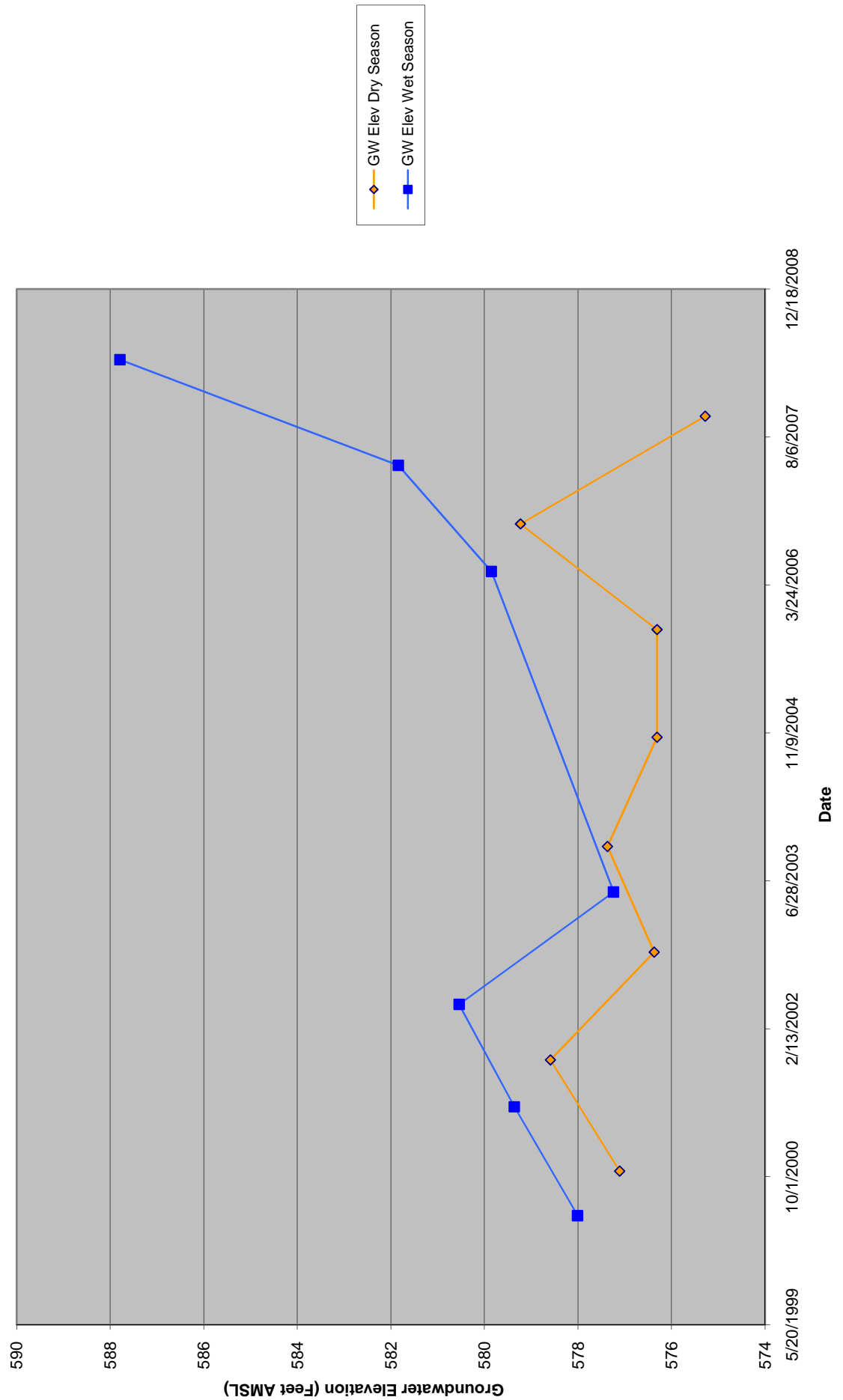
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Seasonal Groundwater Elevation Relationships - Site L1 WES1



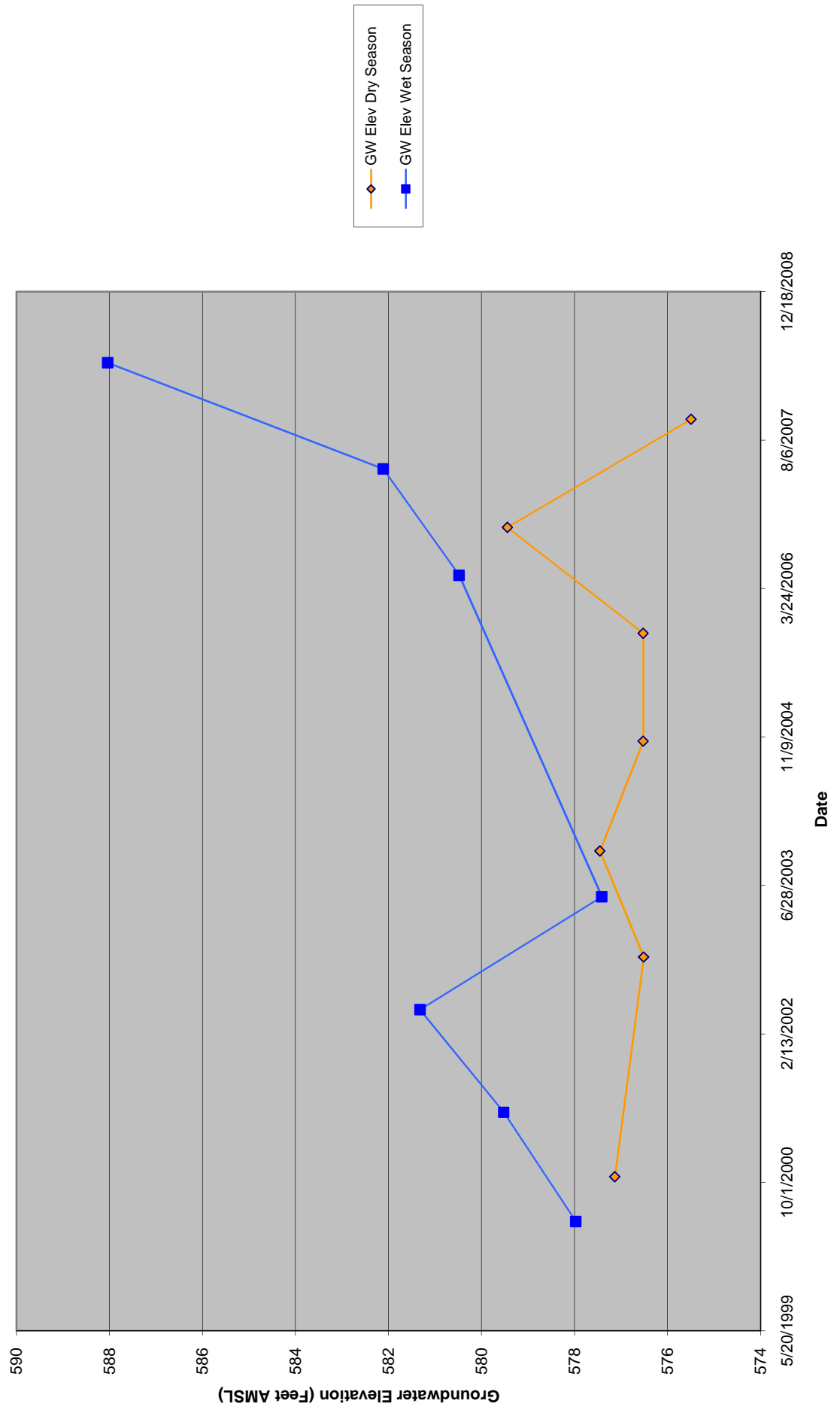
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Seasonal Groundwater Elevation Relationships - Site L14 MW508



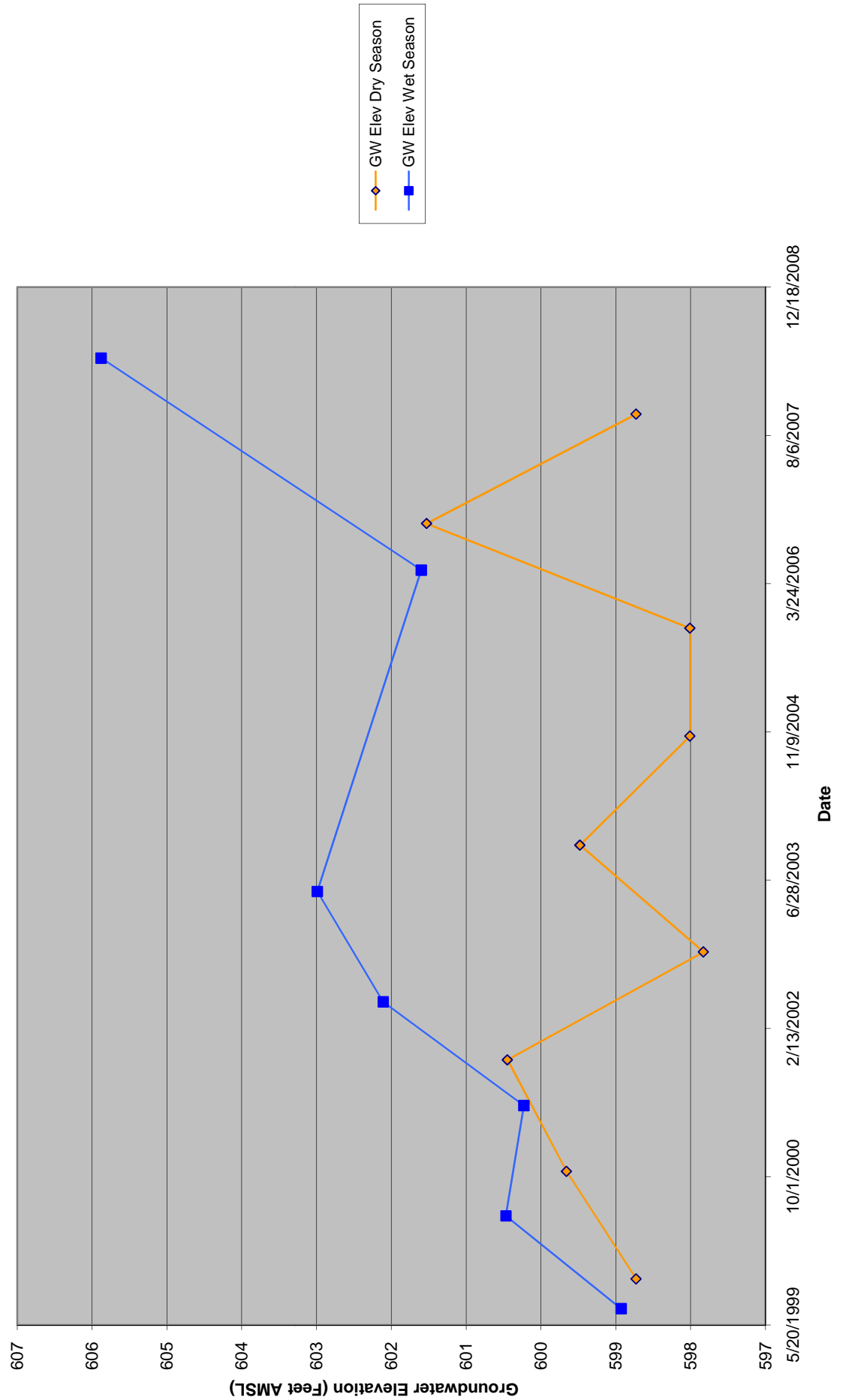
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Seasonal Groundwater Elevation Relationships - Site L14 MW511**



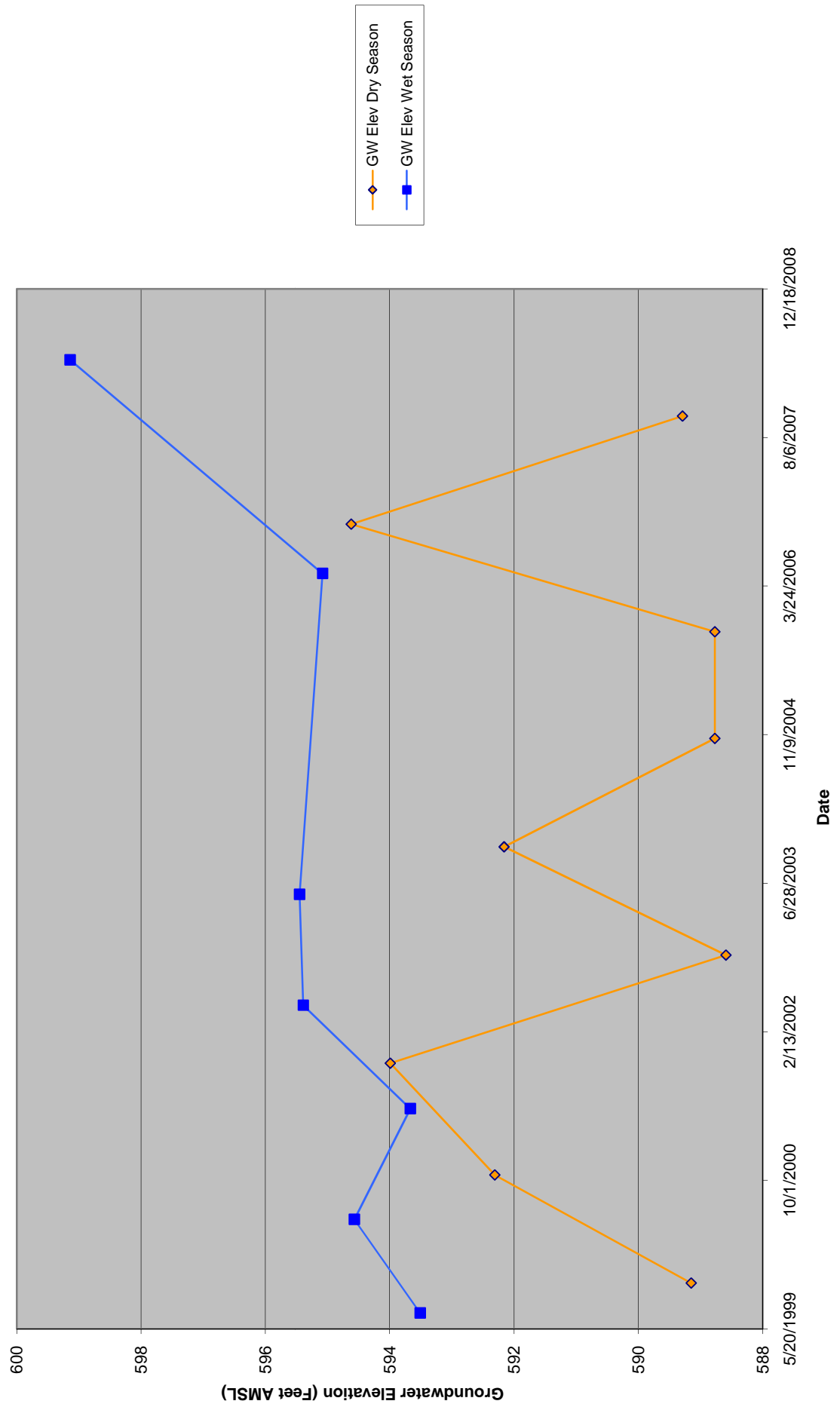
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site L14 MW512



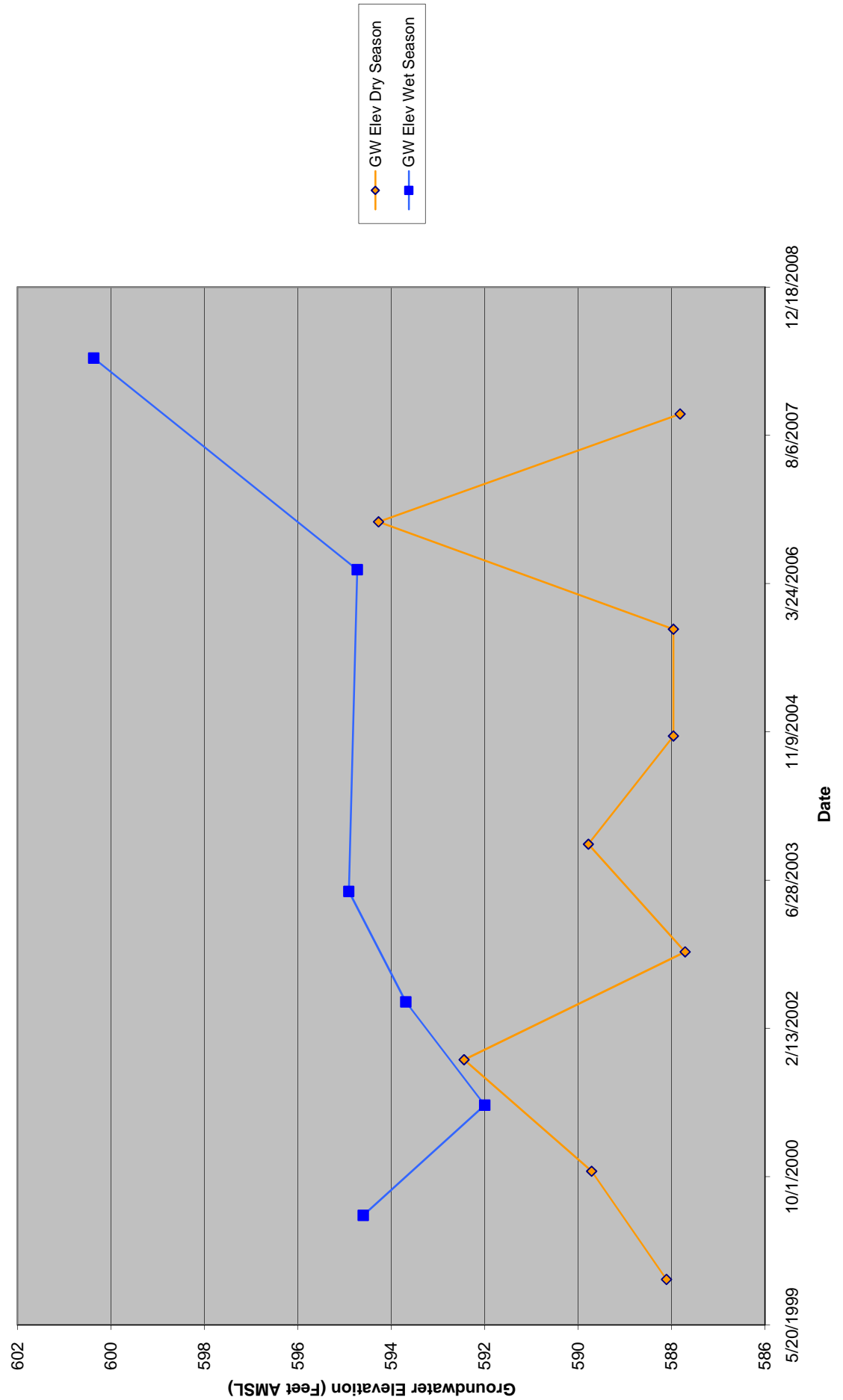
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Seasonal Groundwater Elevation Relationships - Site L2 MW404



Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site L3 MW412

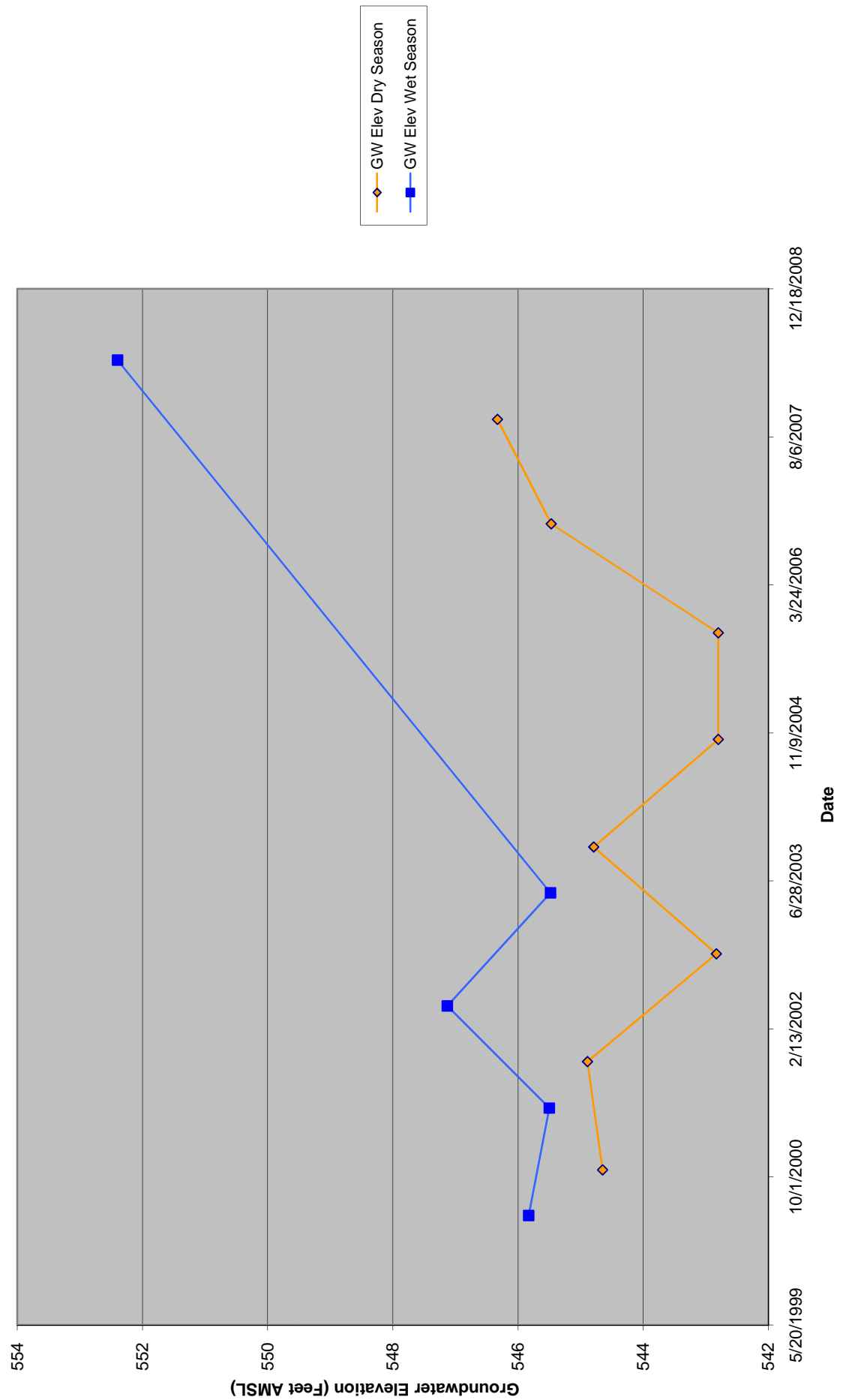


Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Seasonal Groundwater Elevation Relationships - Site L3 MW633

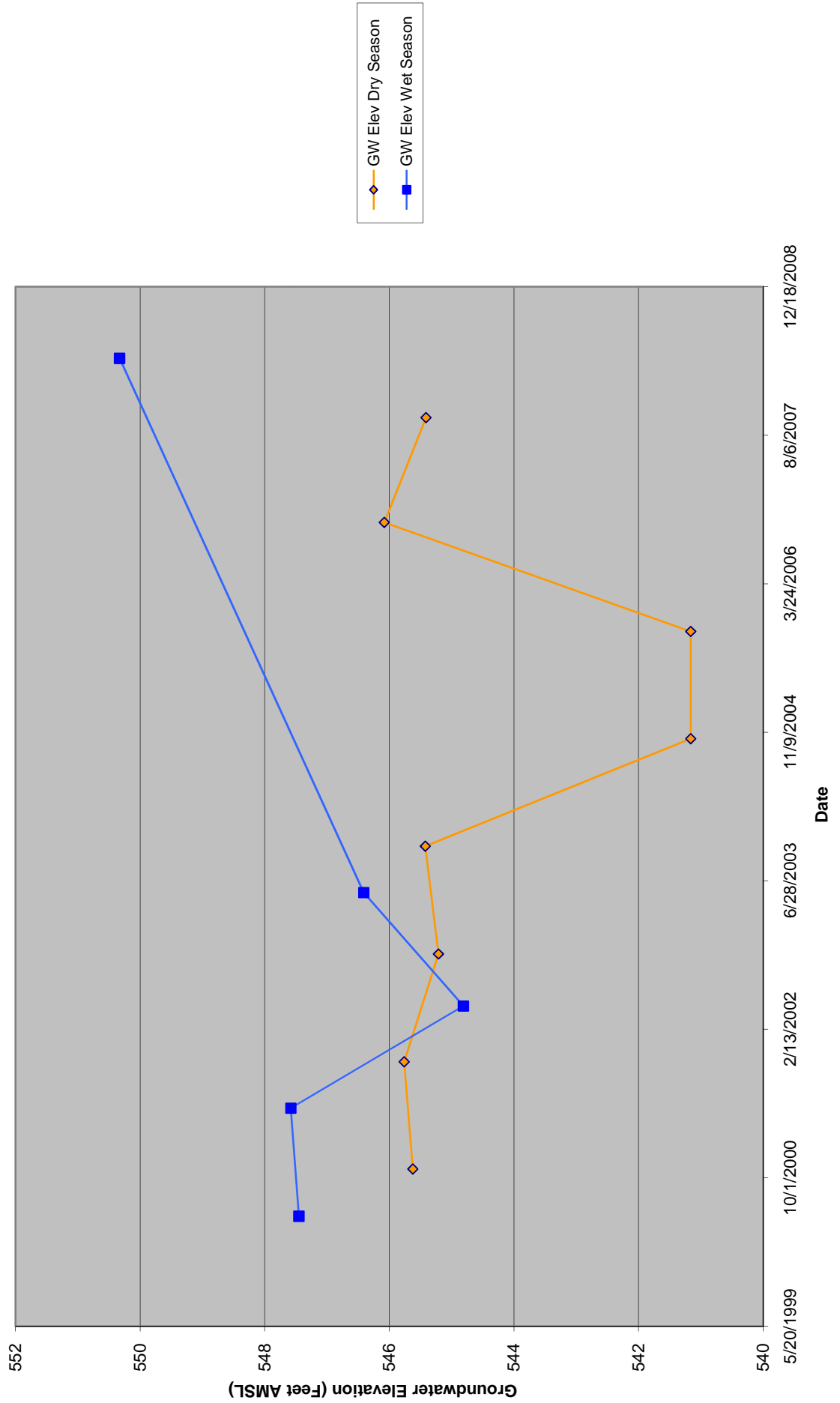




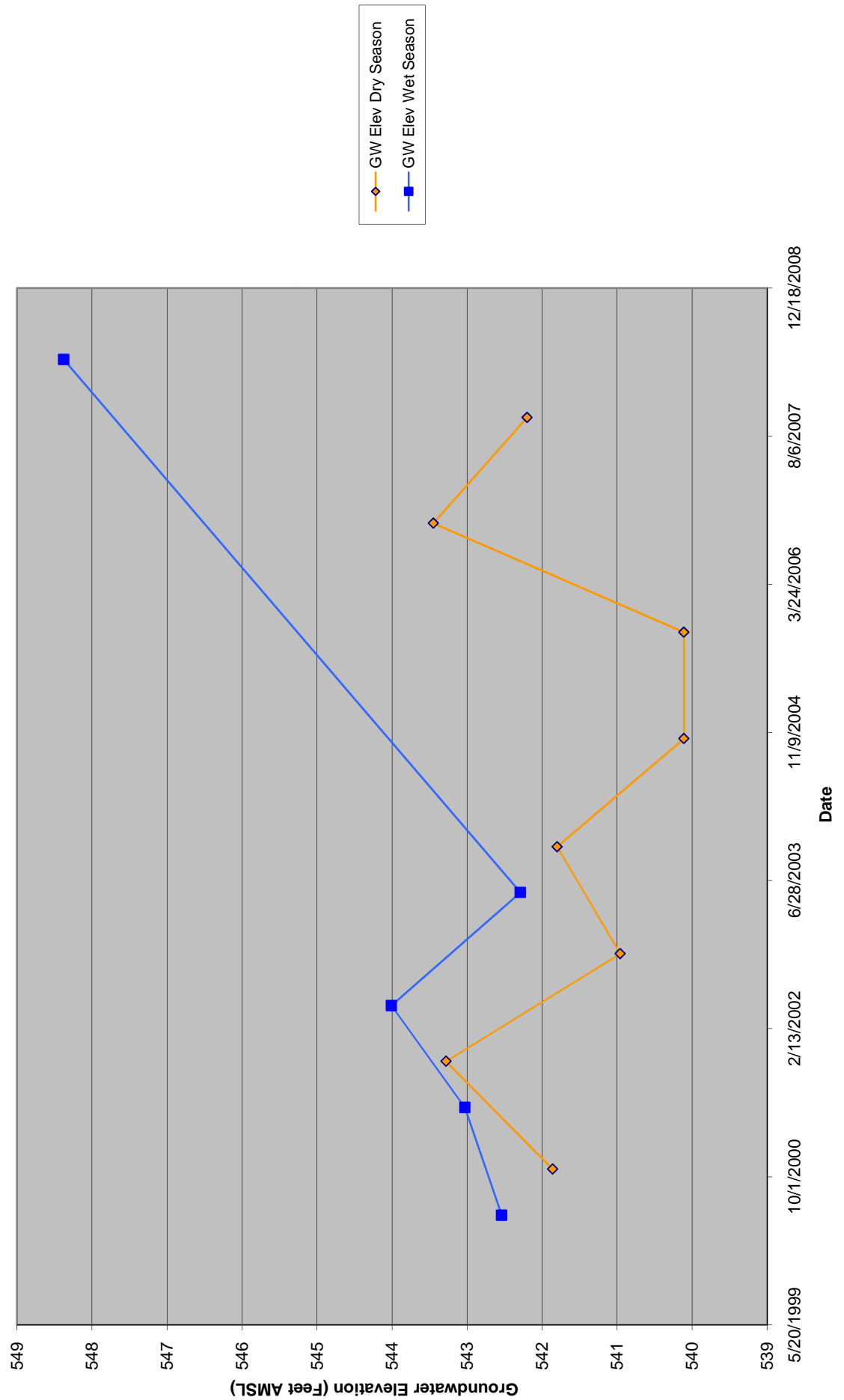
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site M1 MW107



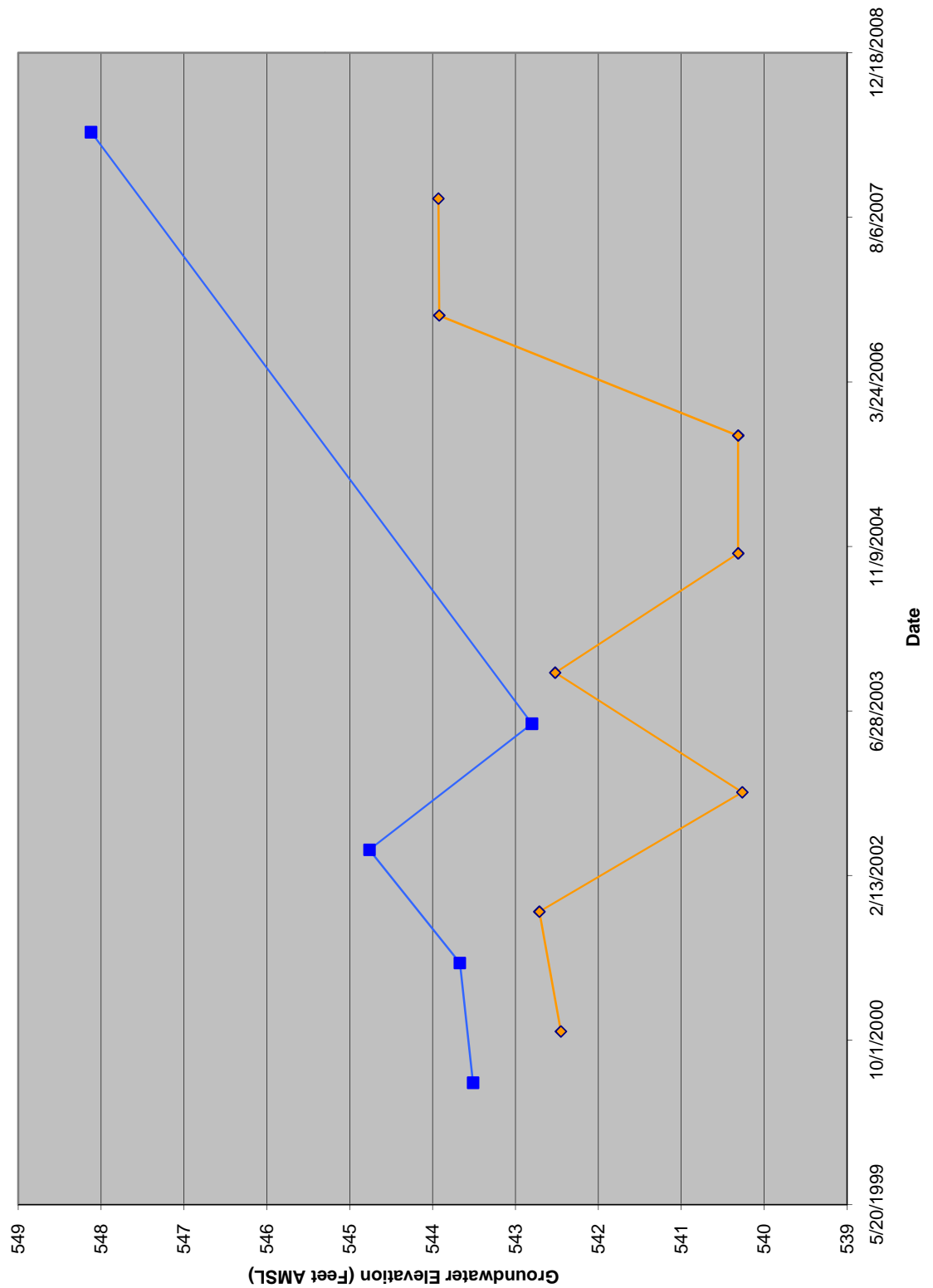
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Joliet Army Ammunition Plant - Wilmington, Illinois  
Seasonal Groundwater Elevation Relationships - Site M1 MW231



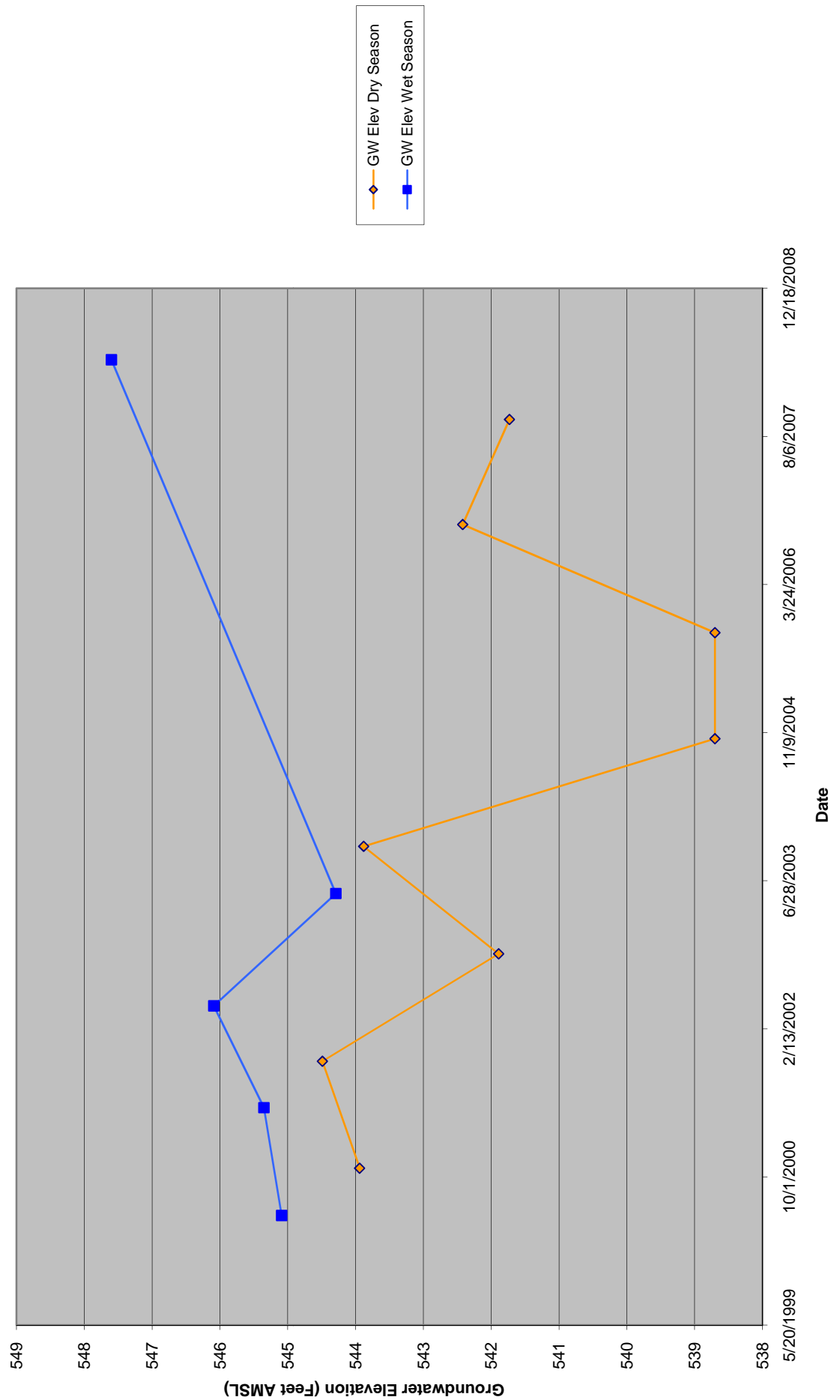
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site M1 MW351



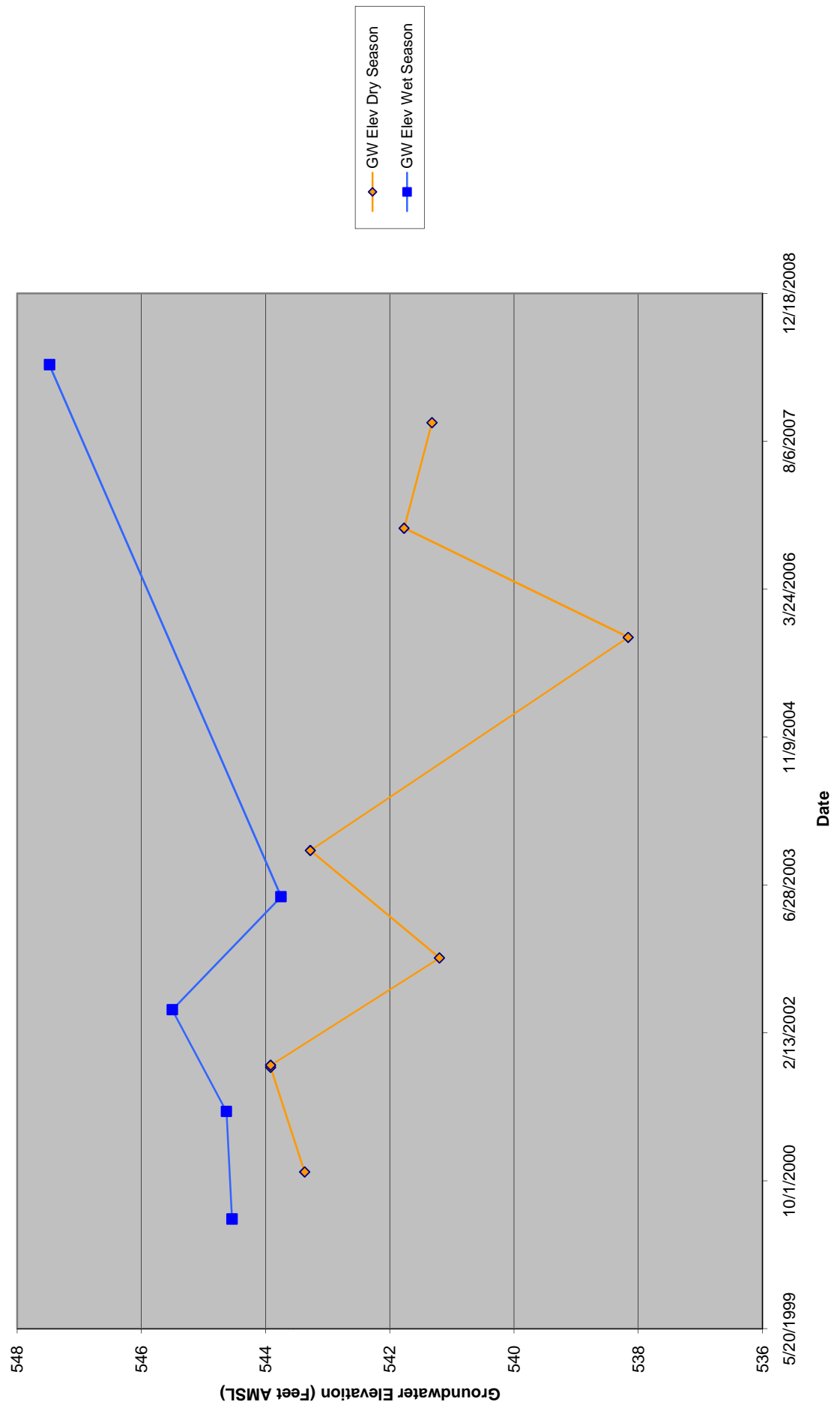
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Seasonal Groundwater Elevation Relationships - Site M1 MW640



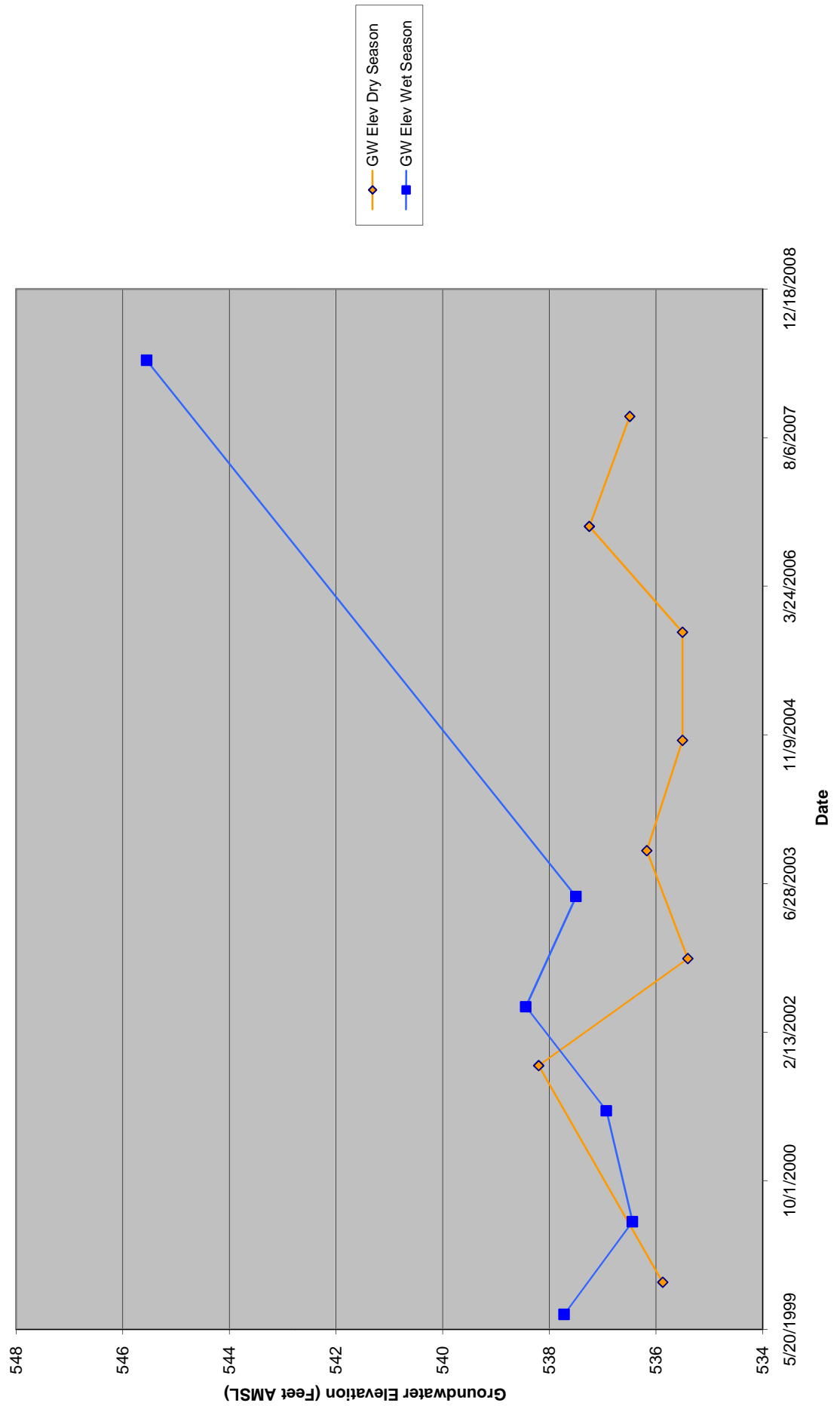
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Seasonal Groundwater Elevation Relationships - Site M1 MW641**



Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site M1 MW642

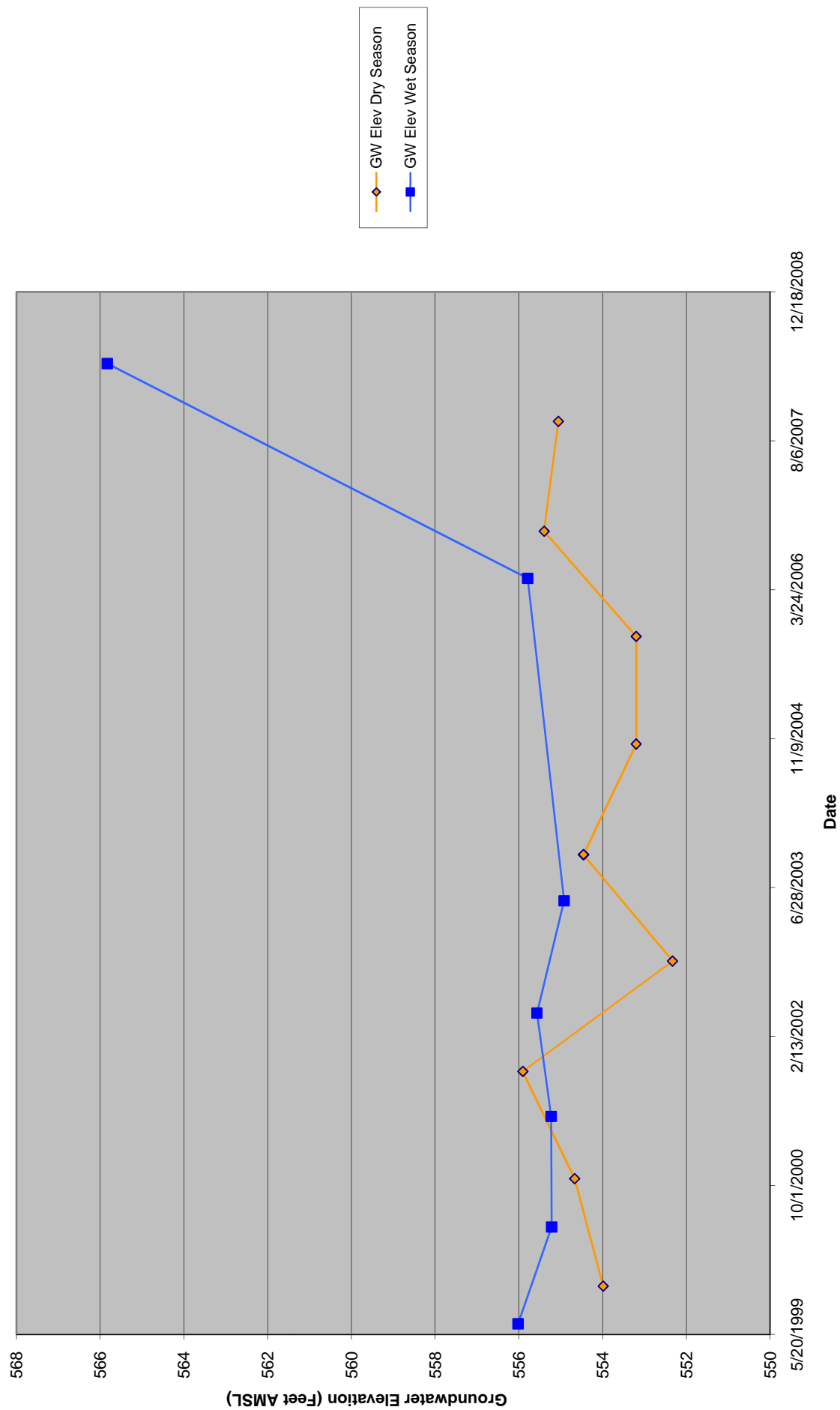


**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Seasonal Groundwater Elevation Relationships - Site M13 MW321**

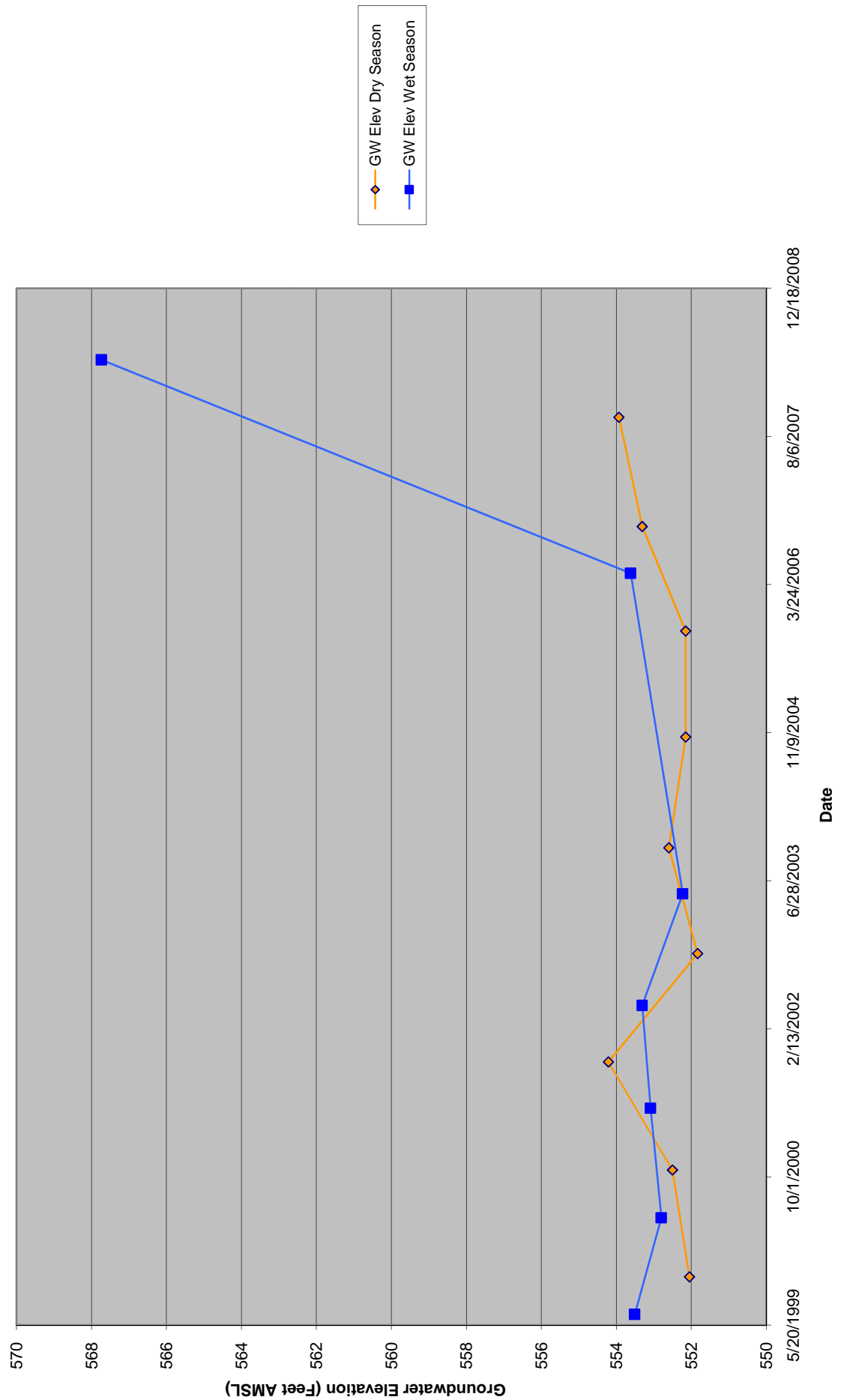




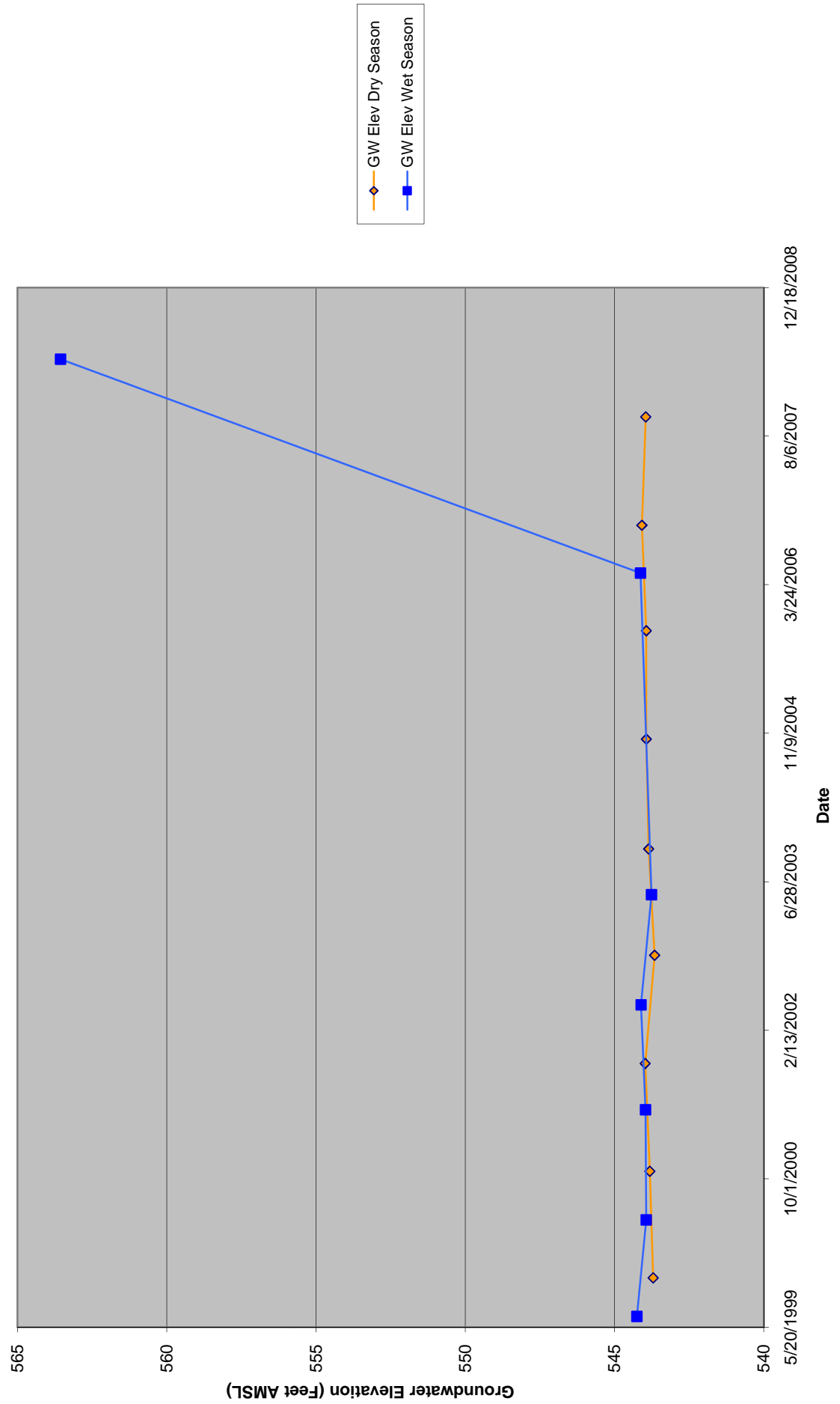
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site M6 MW210R



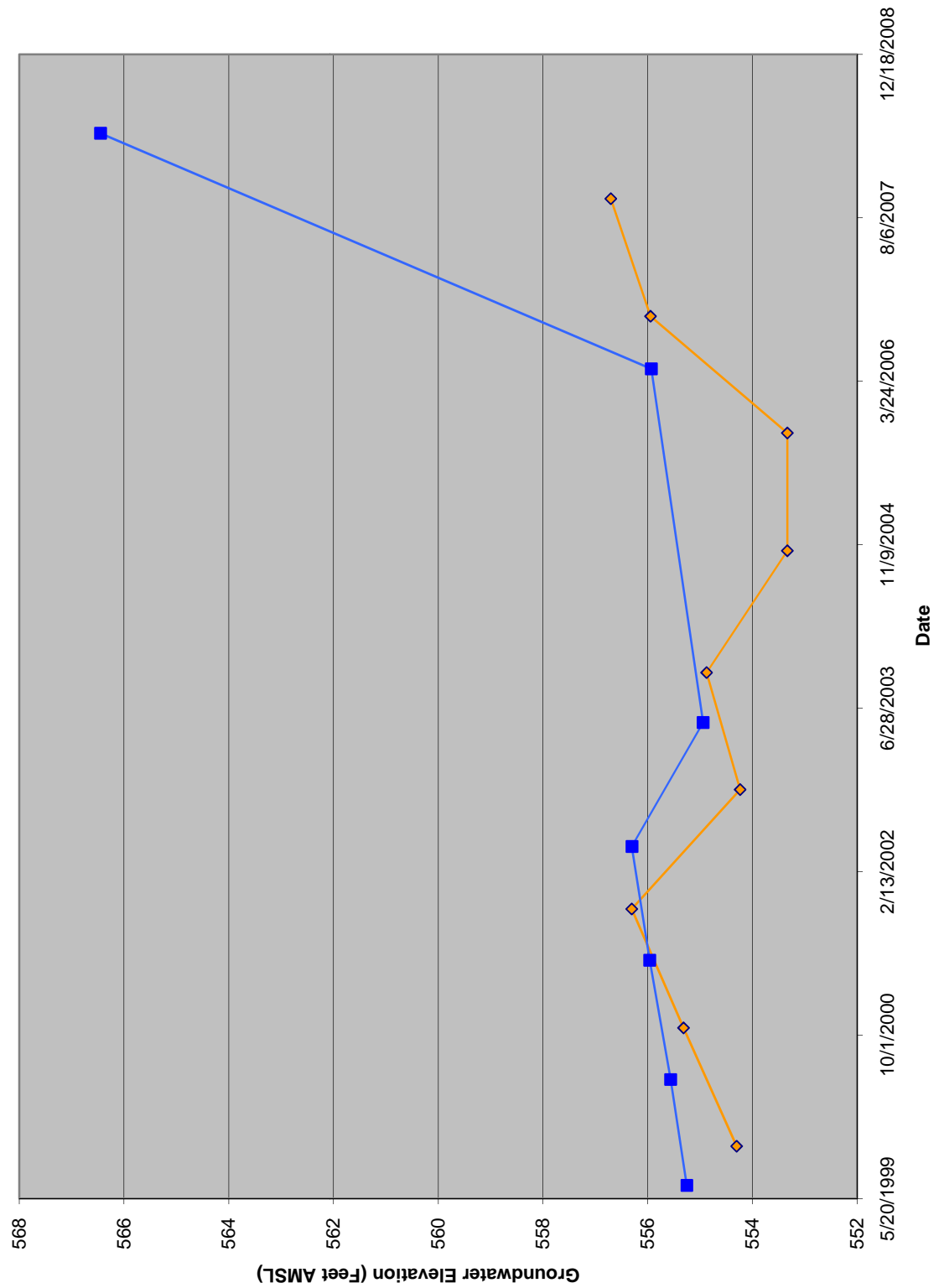
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site M6 MW212R



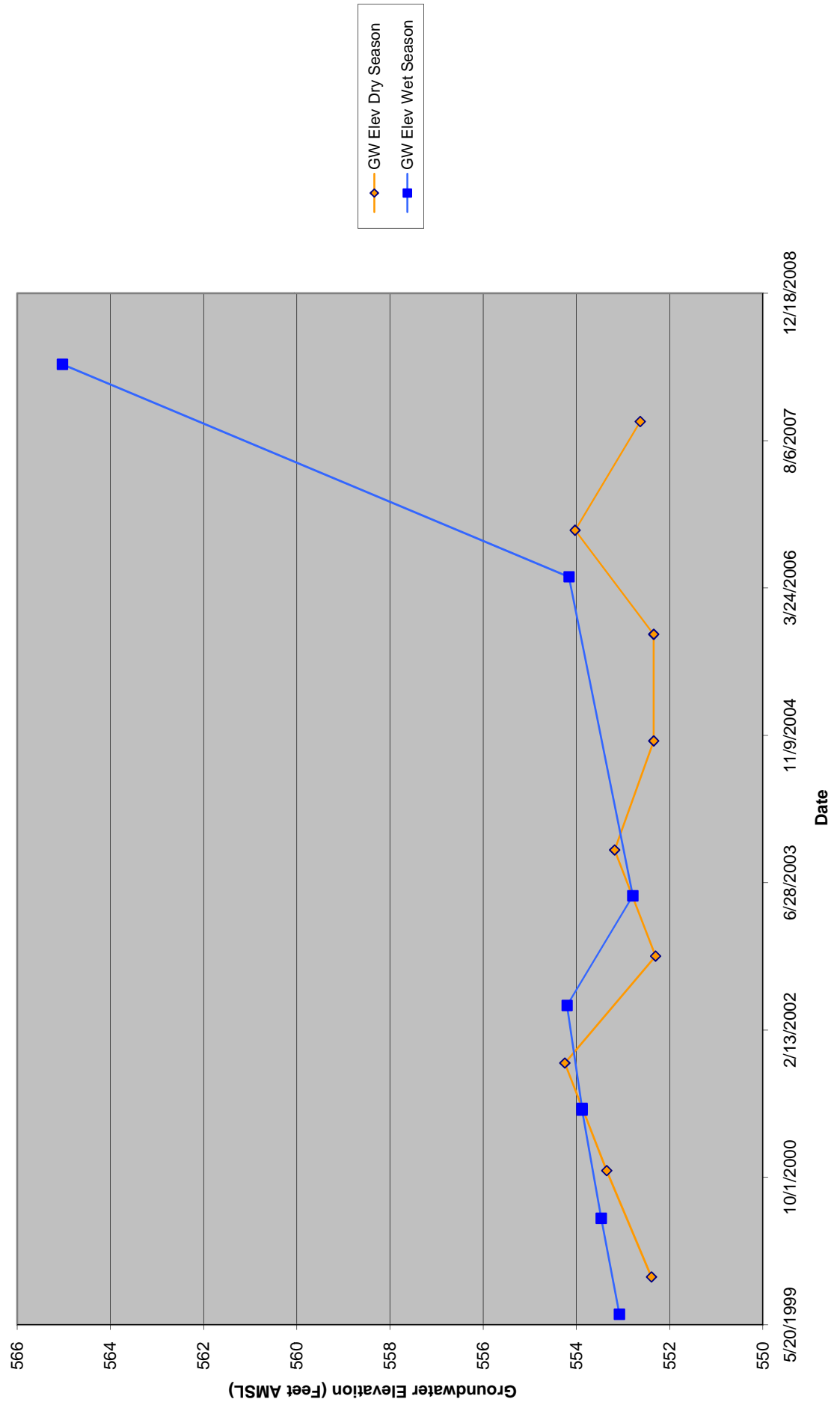
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 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site M6 MW307



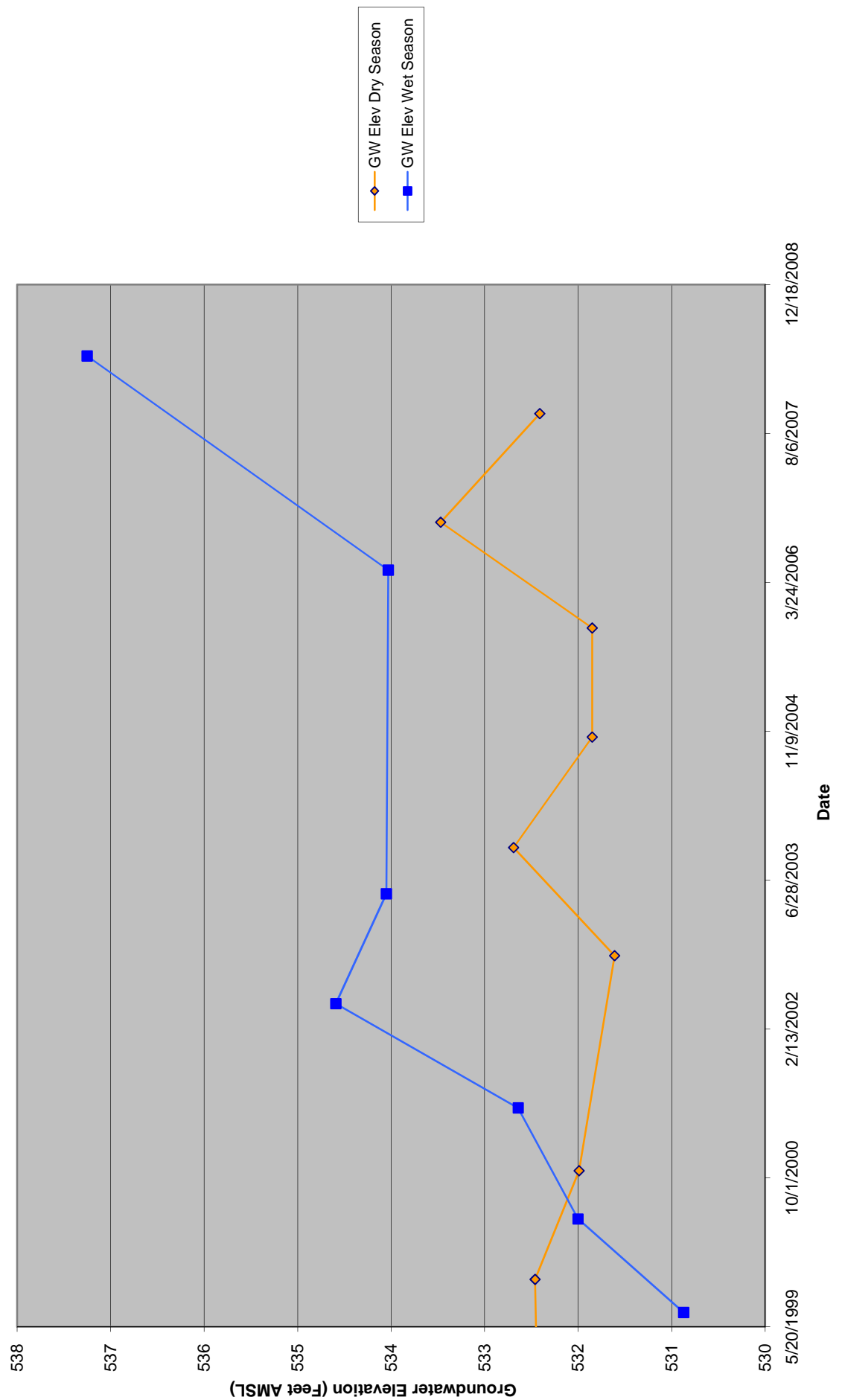
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**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Seasonal Groundwater Elevation Relationships - Site M6 MW650**



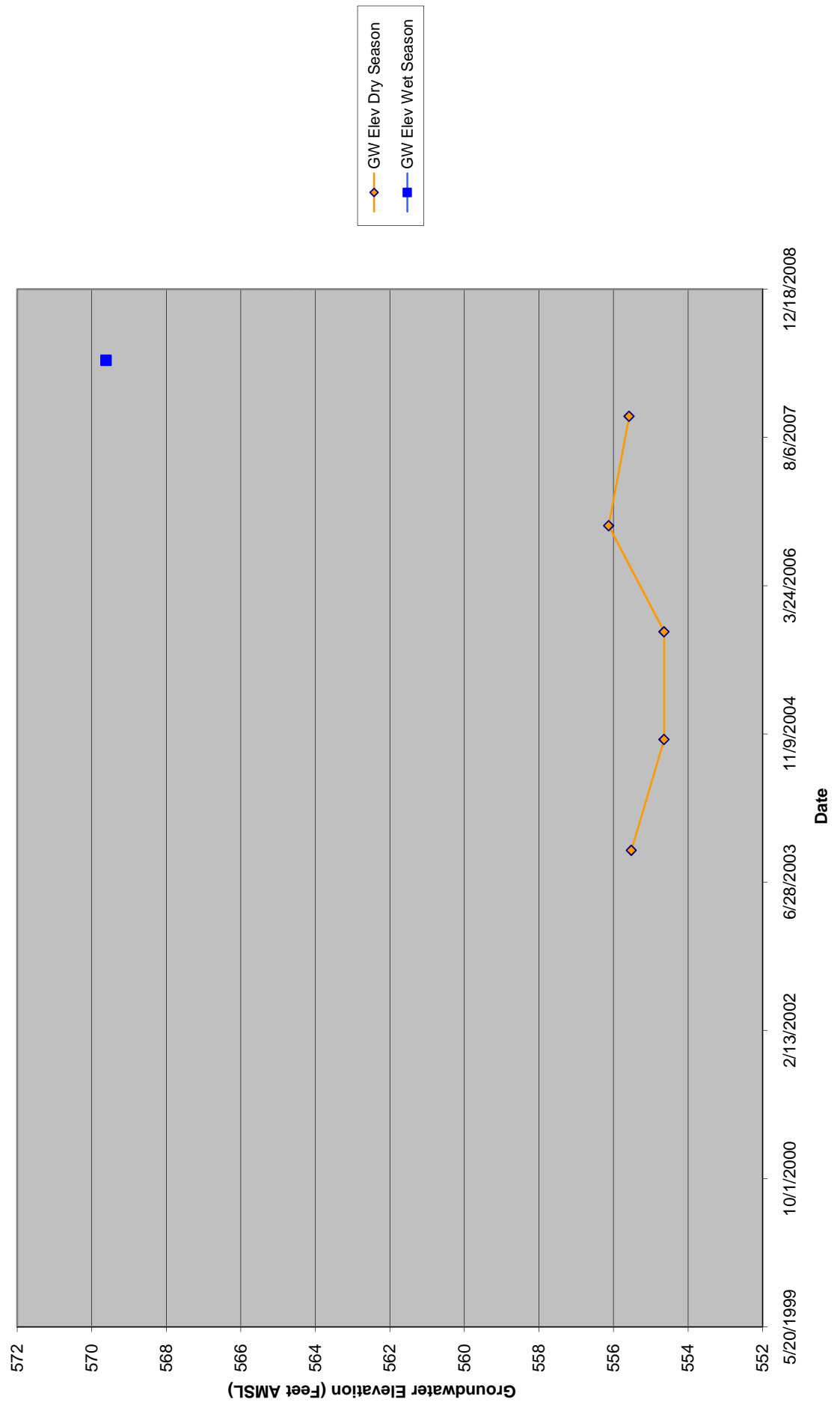
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Seasonal Groundwater Elevation Relationships - Site M6 MW652**



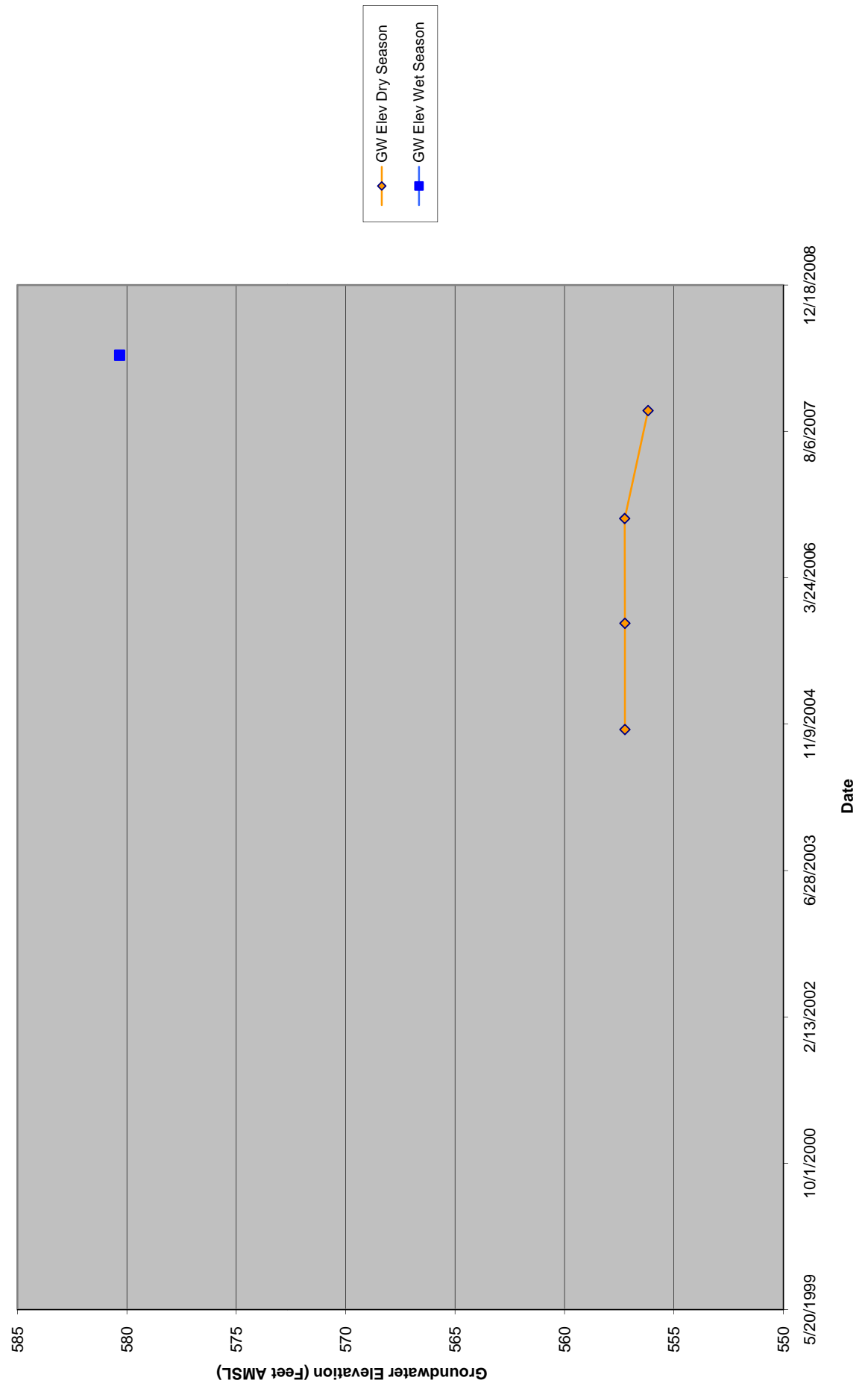
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site M7 MW124R



Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Seasonal Groundwater Elevation Relationships - Site M8 MW325R



Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Seasonal Groundwater Elevation Relationships - Site M8 MW330



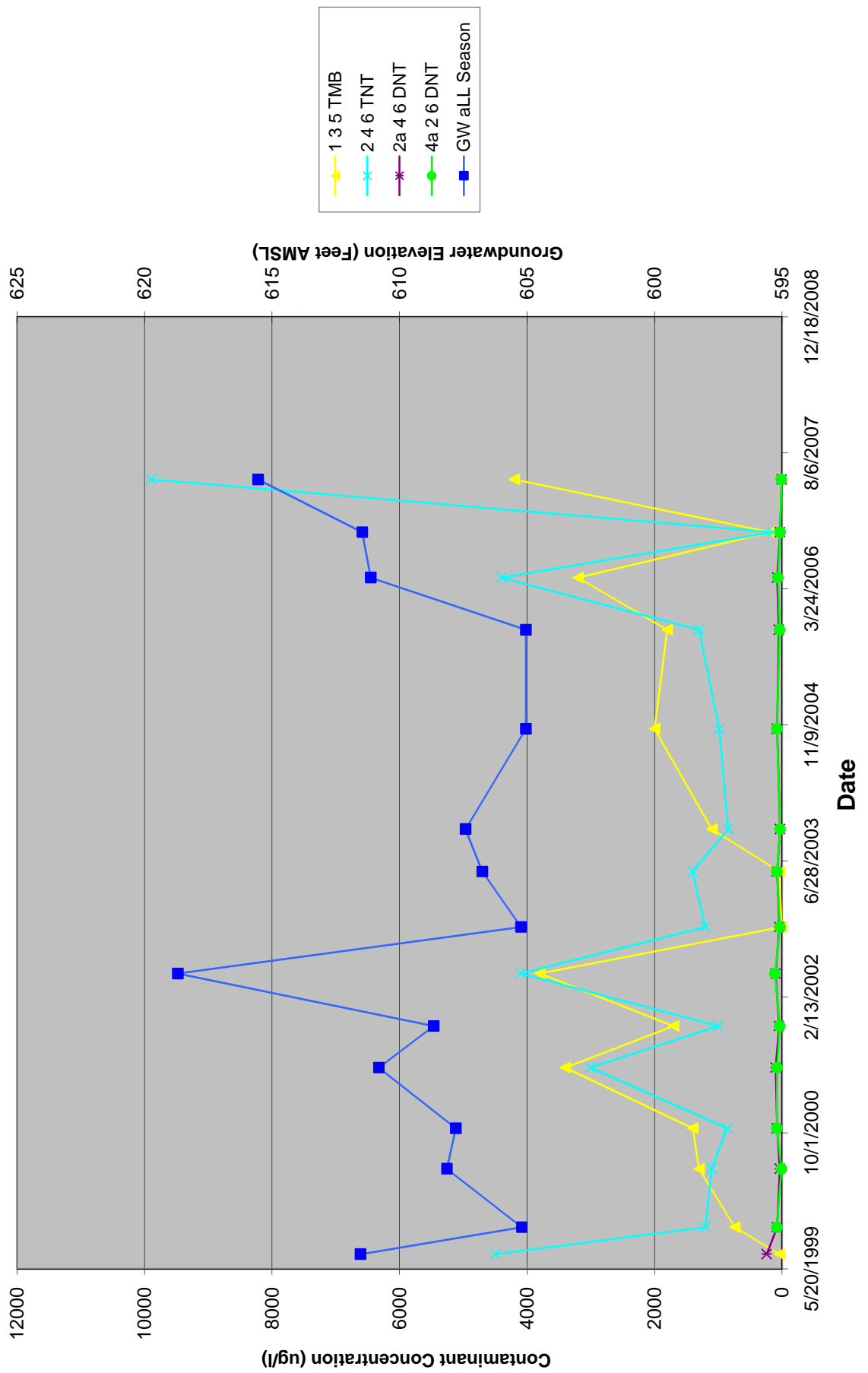


## **Attachment 7**

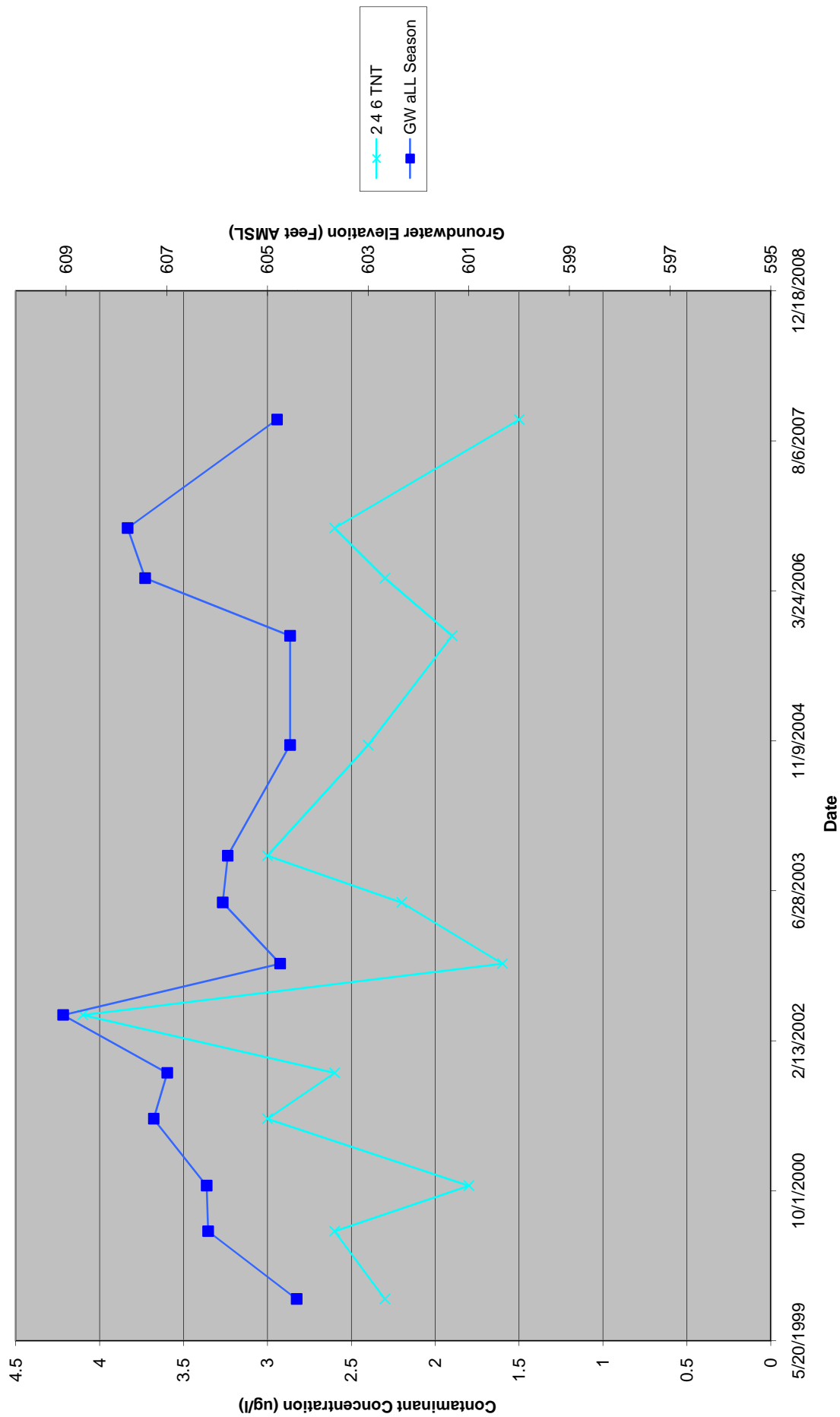
### **Data Plots**

#### **Relationship Between Groundwater Elevation and Contaminant Concentrations**

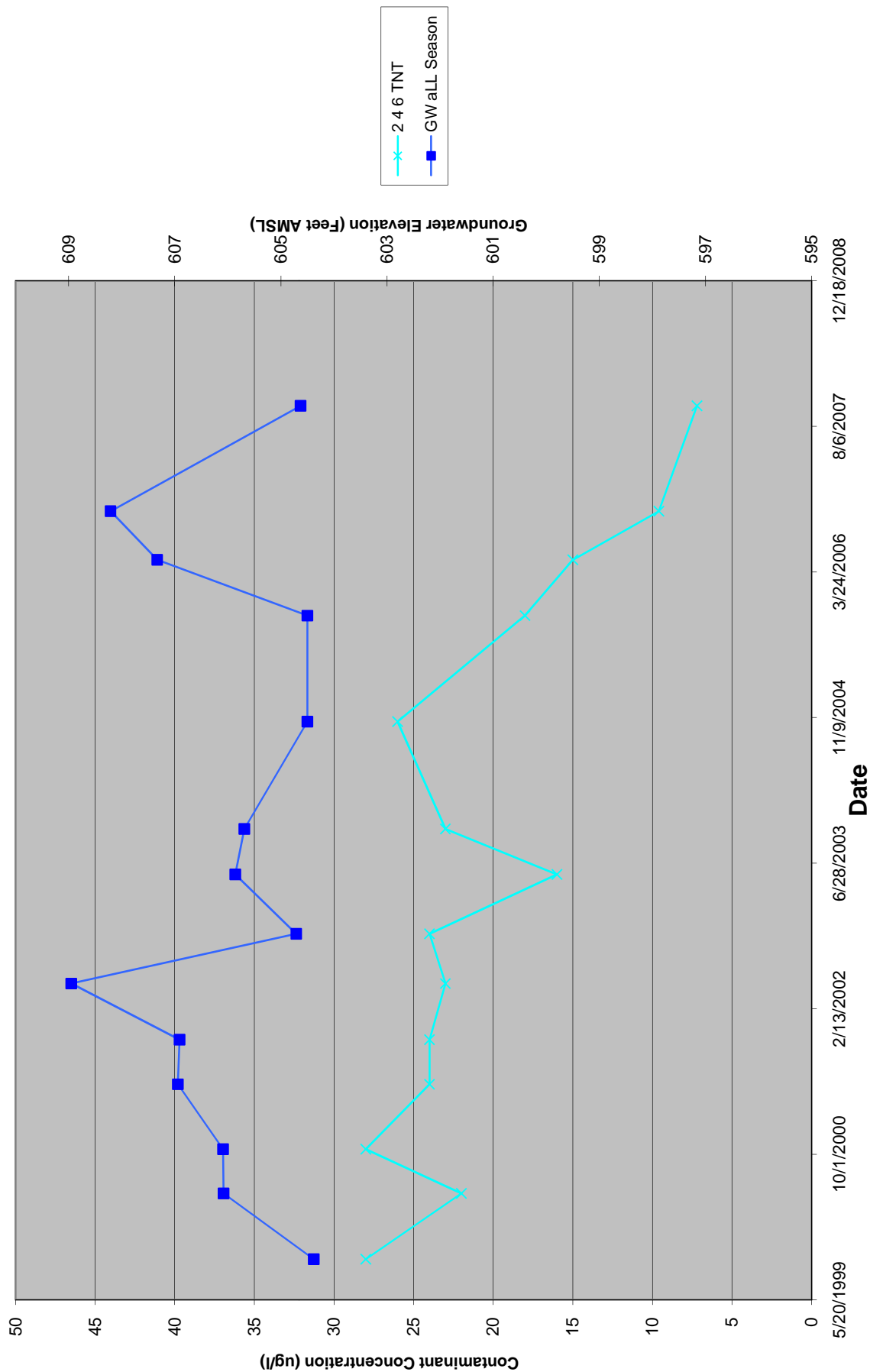
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site L1 MW 131



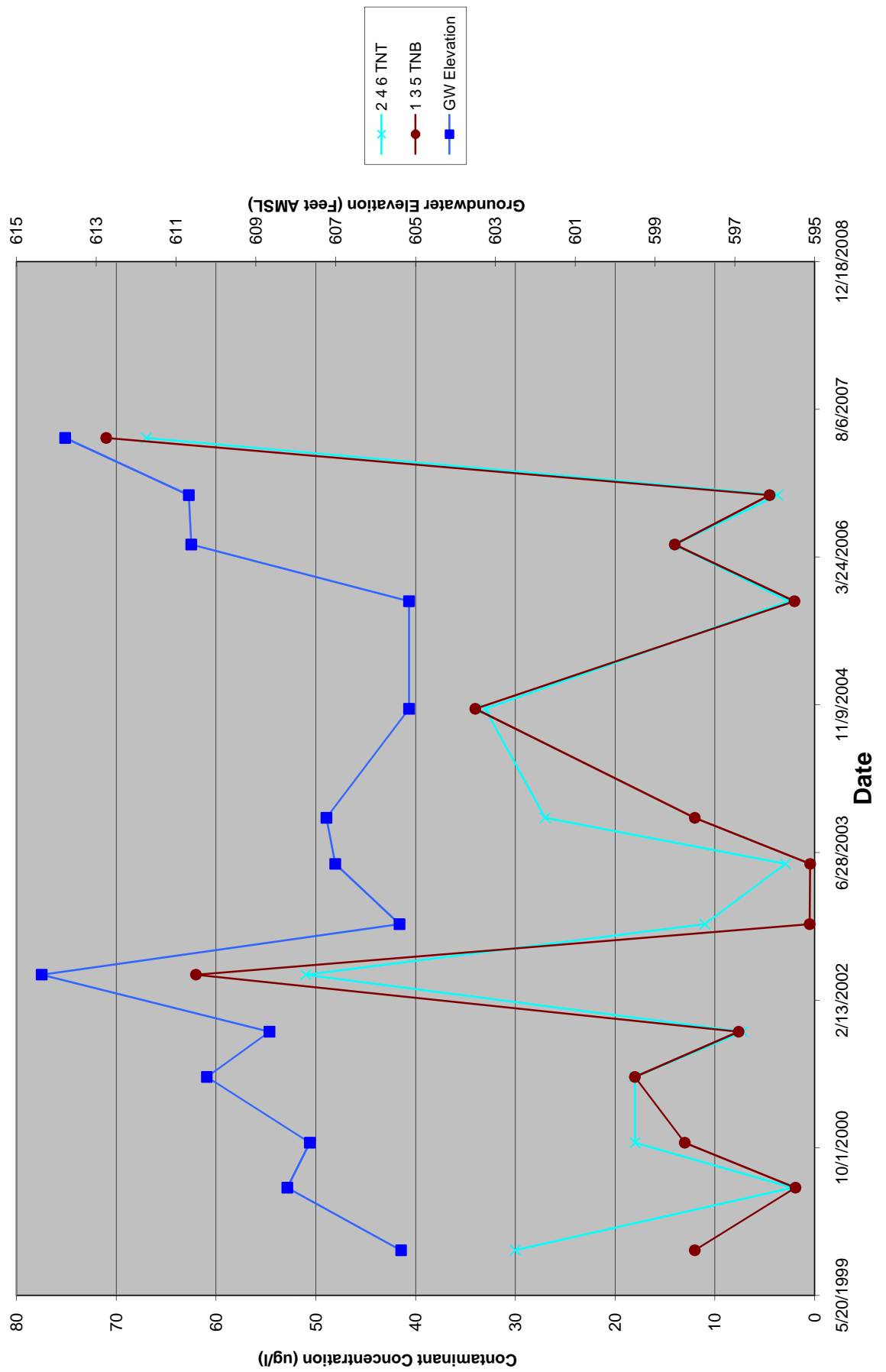
**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Relationship Between Groundwater Elevation and Contaminant Concentration - Site L1 MW 172**



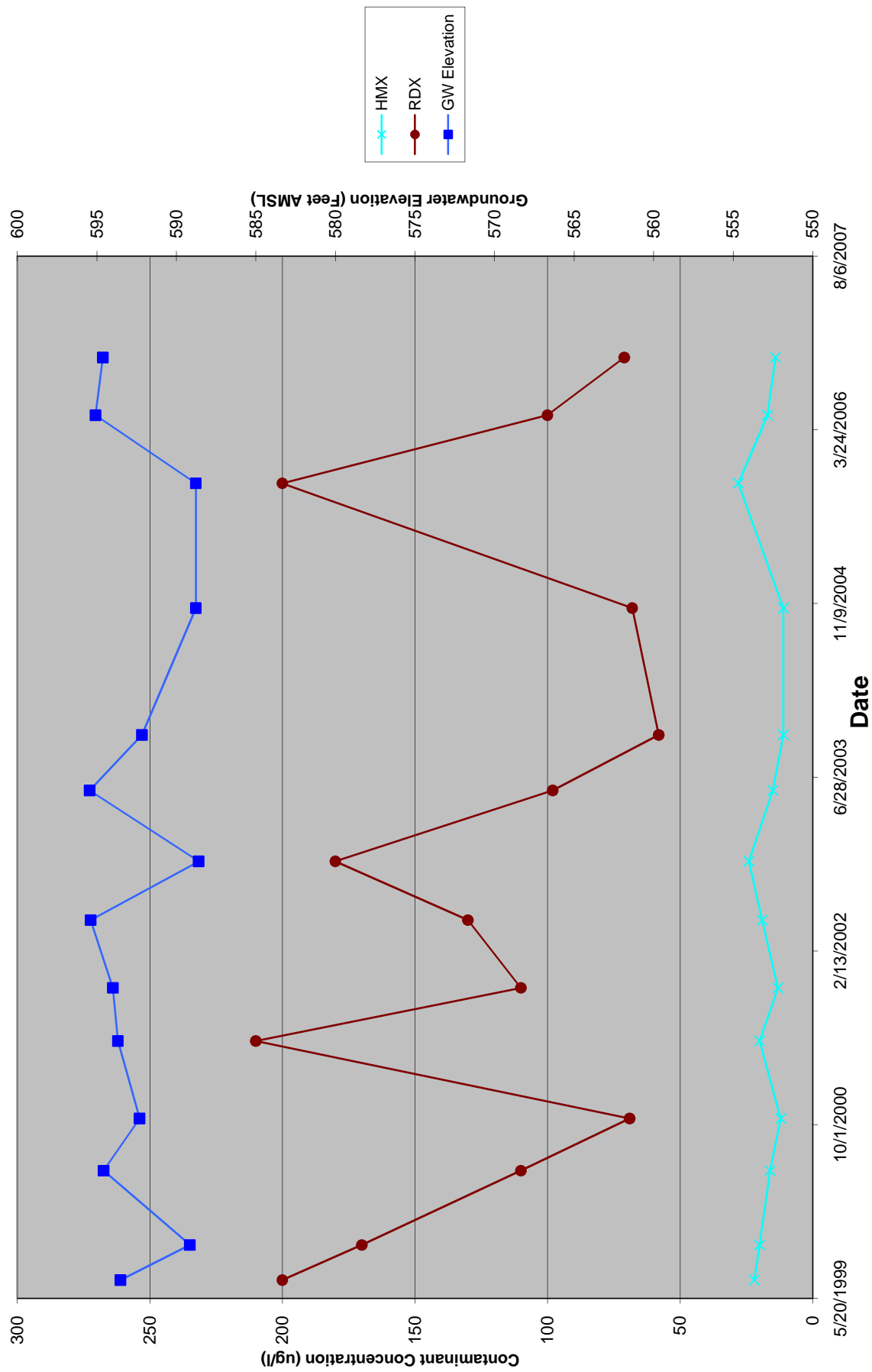
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site L1 MW 173



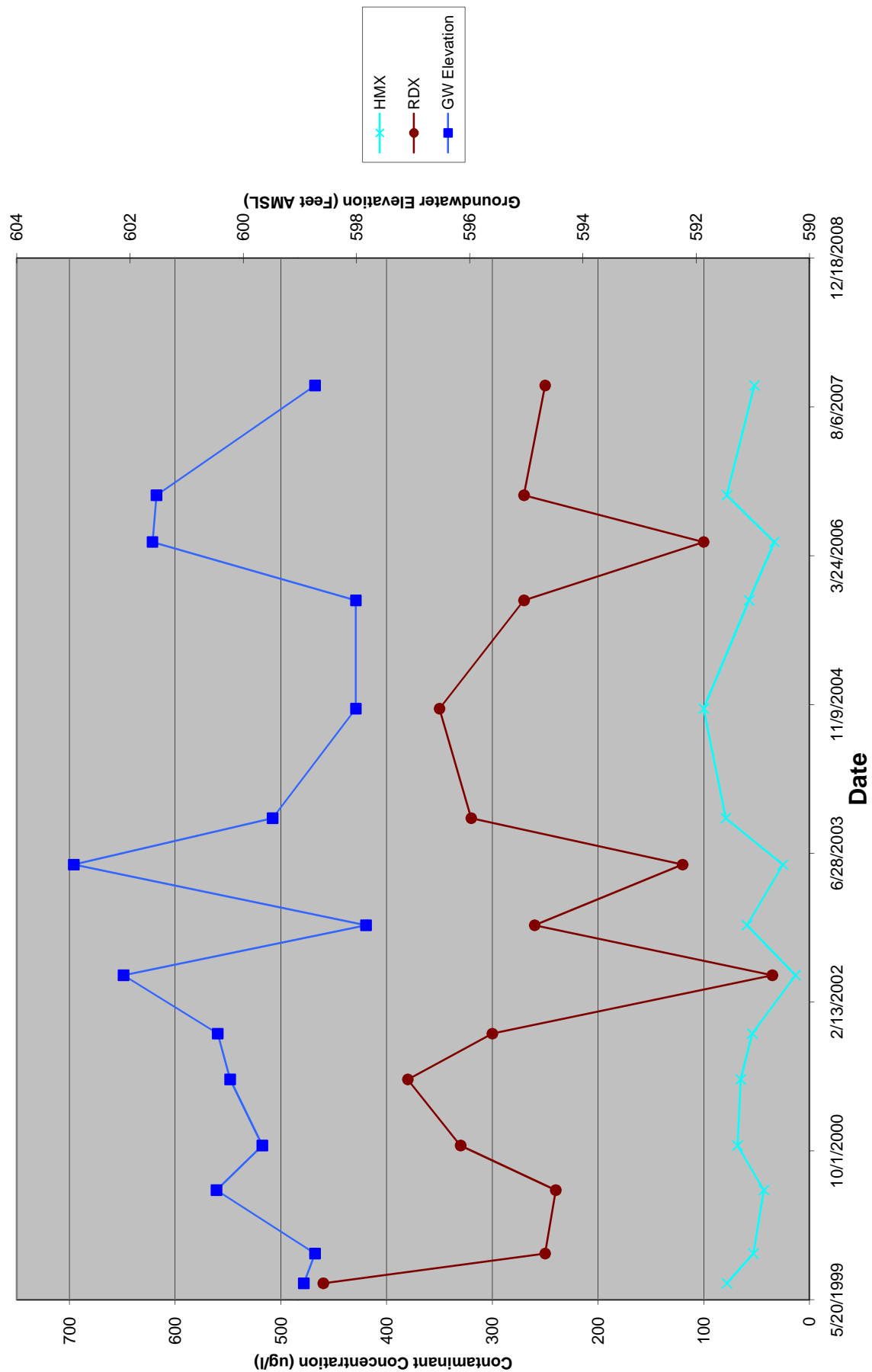
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site L1 WES1



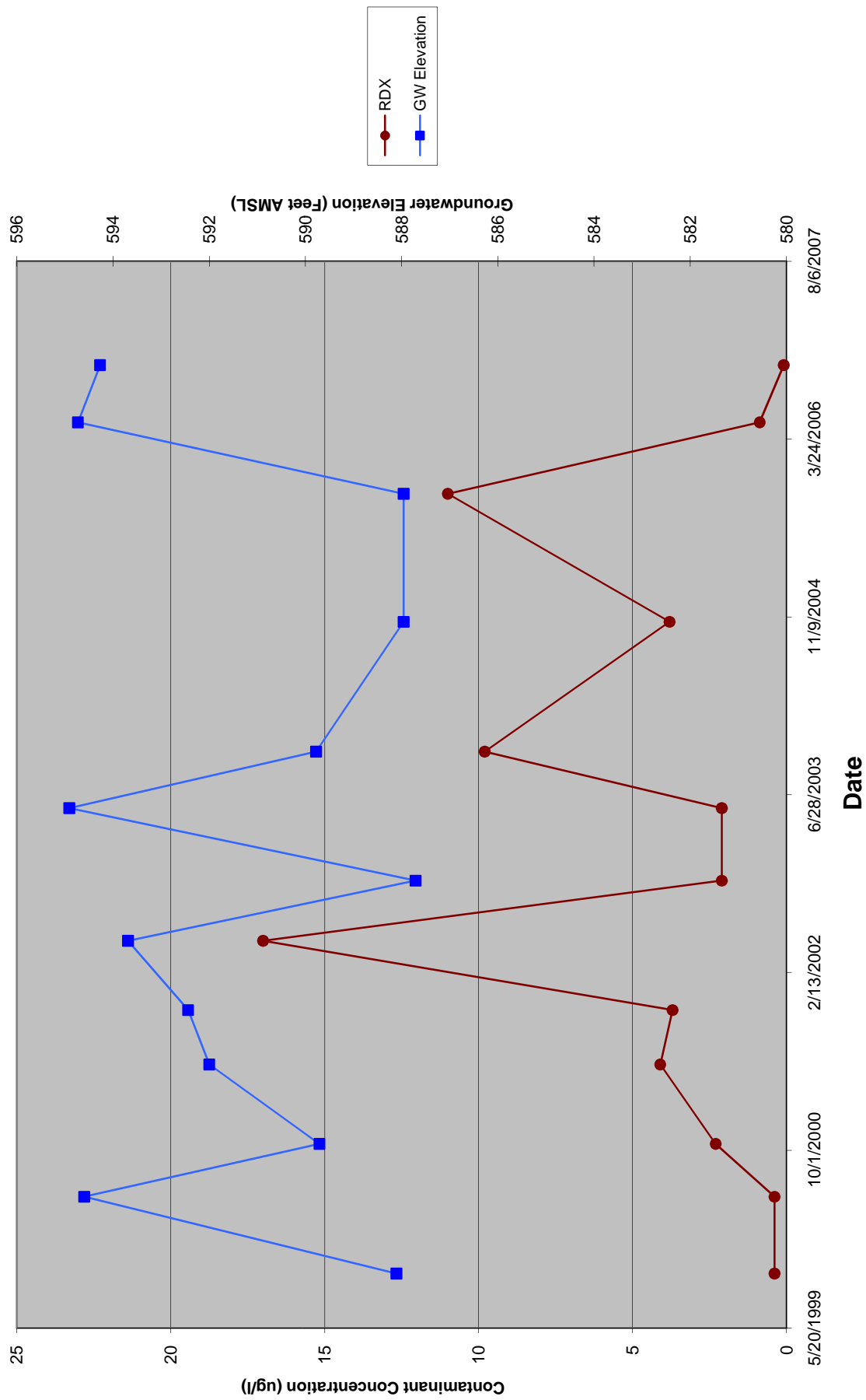
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site L3 MW412



Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site L2 MW404

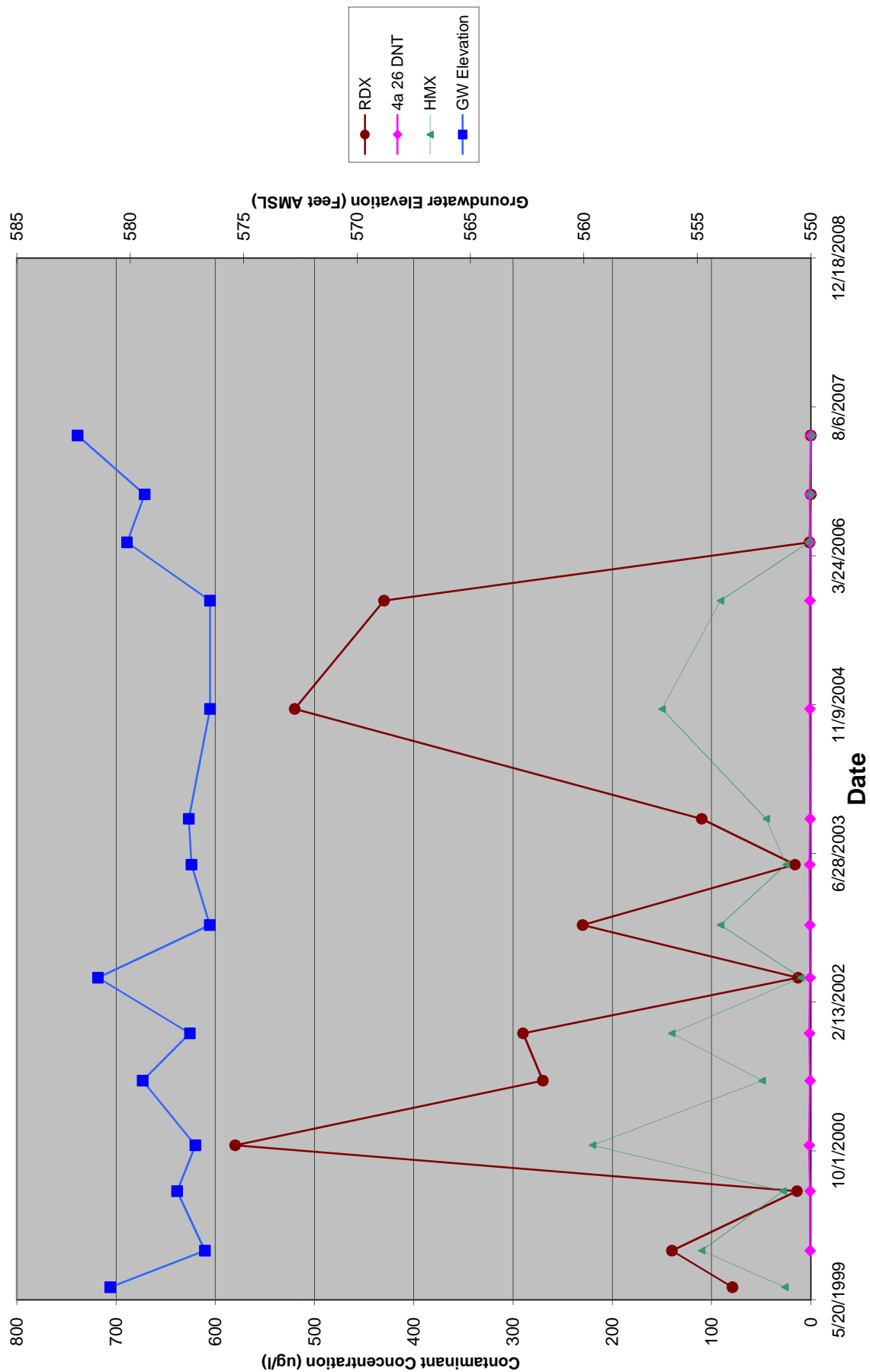


Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site L3 MW633

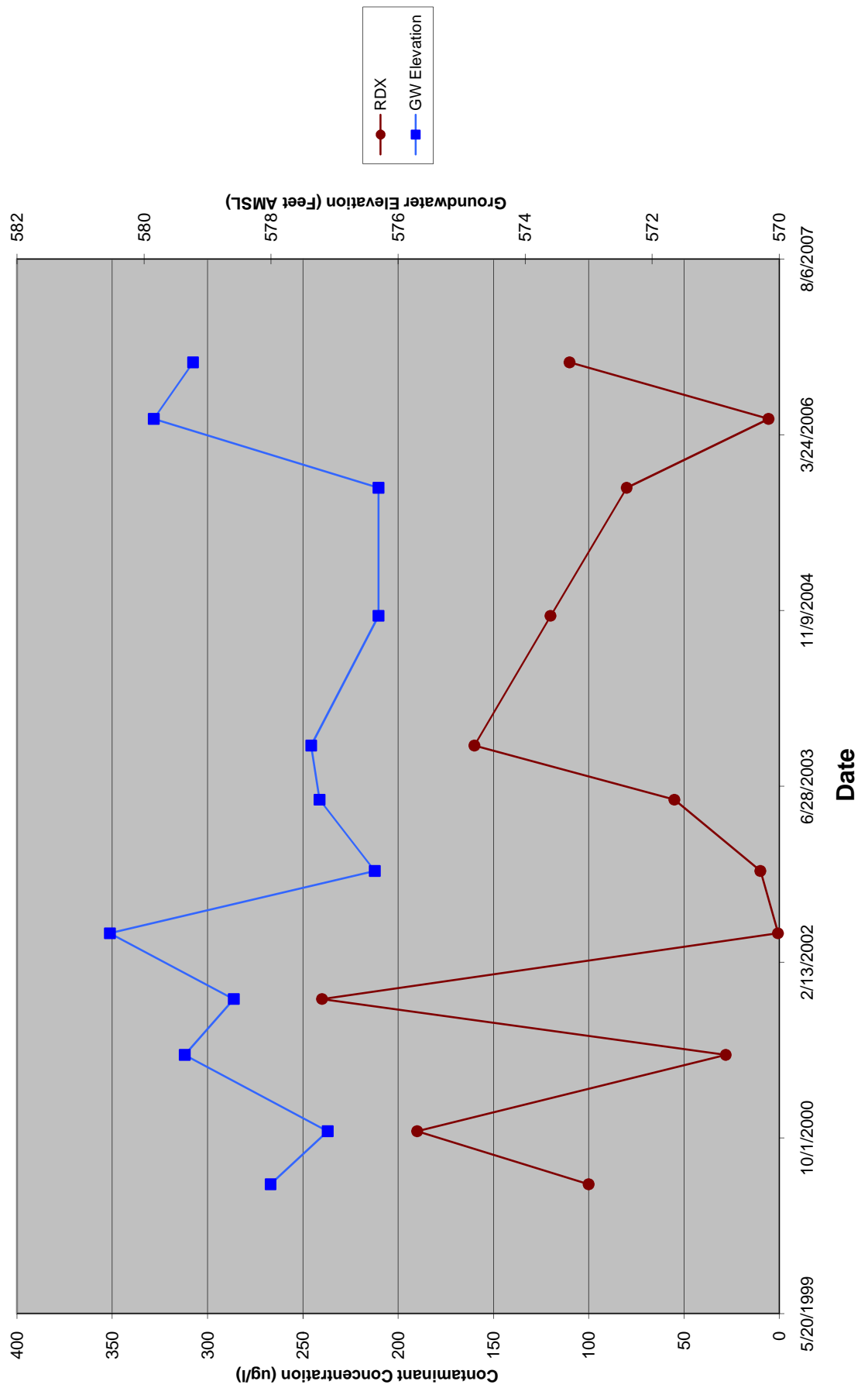




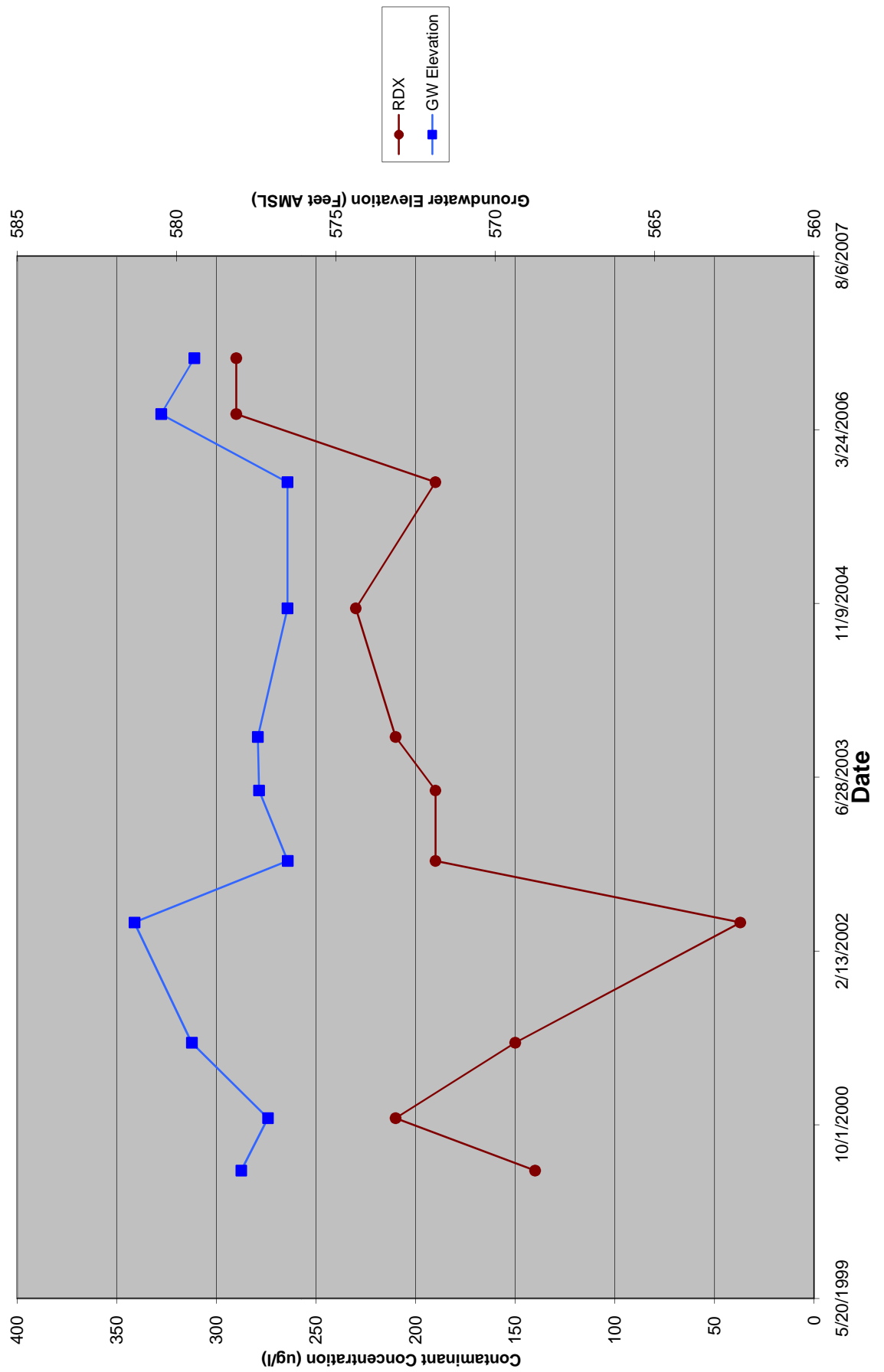
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site L14 MW508



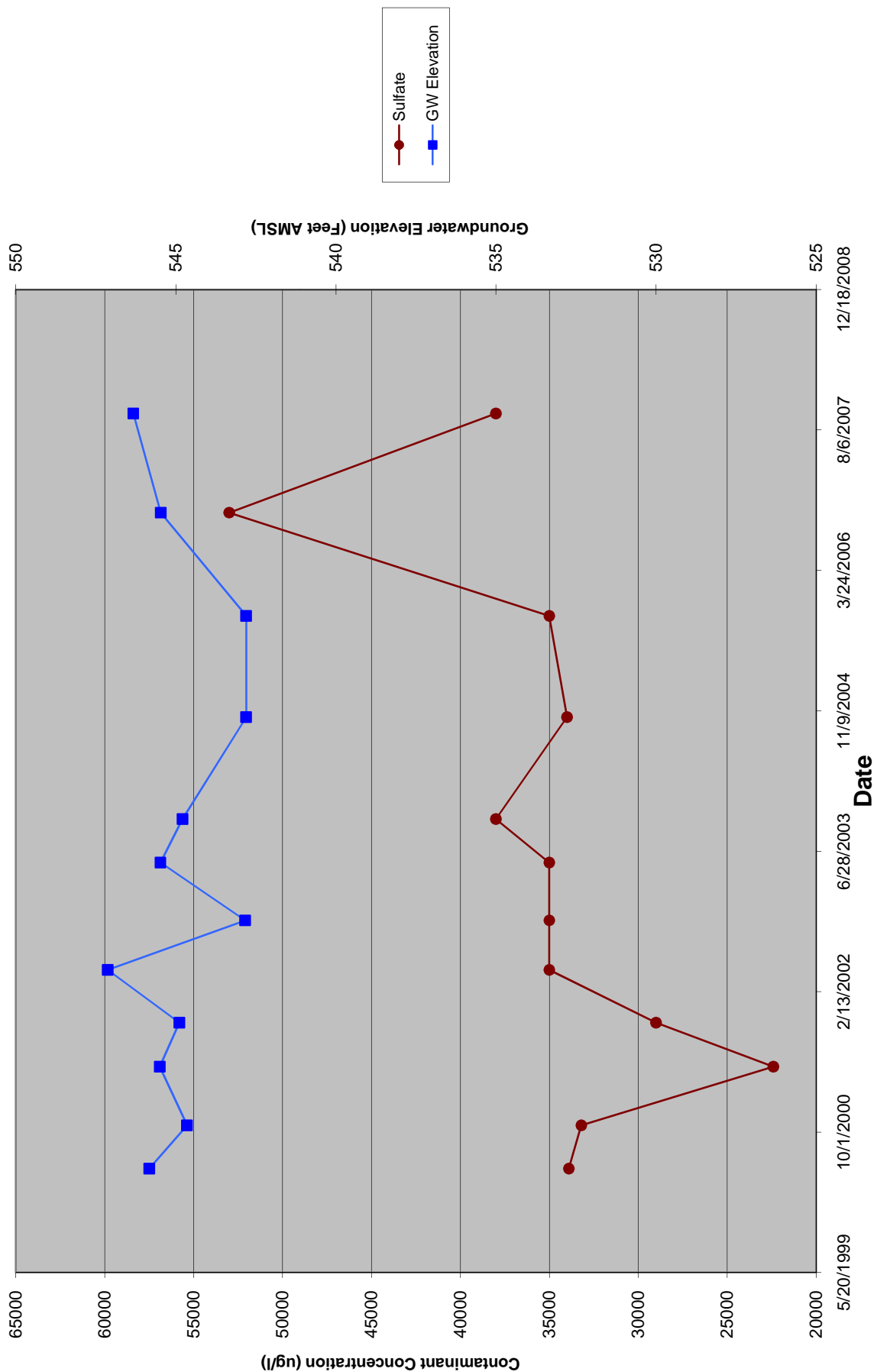
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 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site L14 MW511



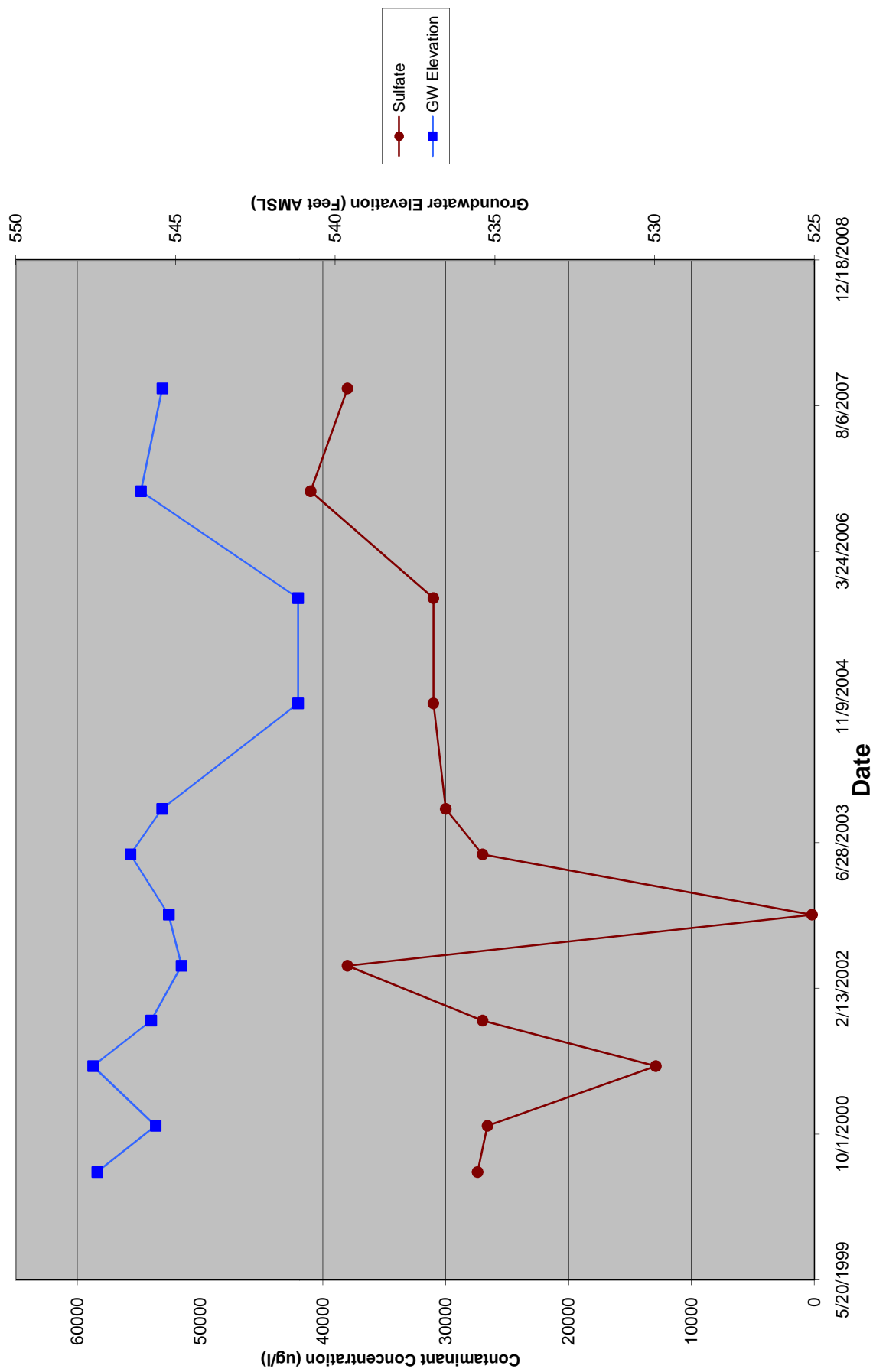
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 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site L14 MW512



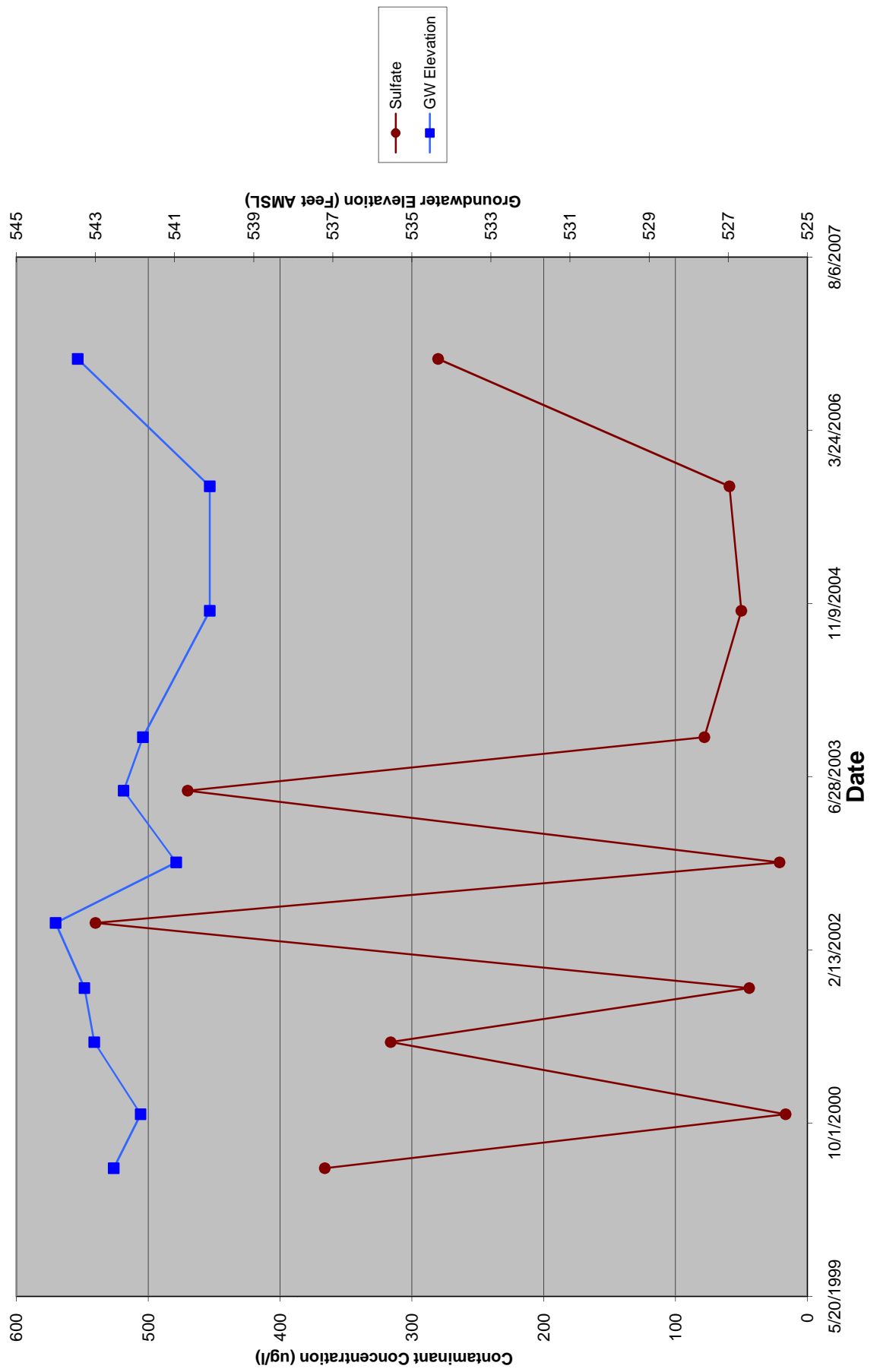
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site M1 MW107



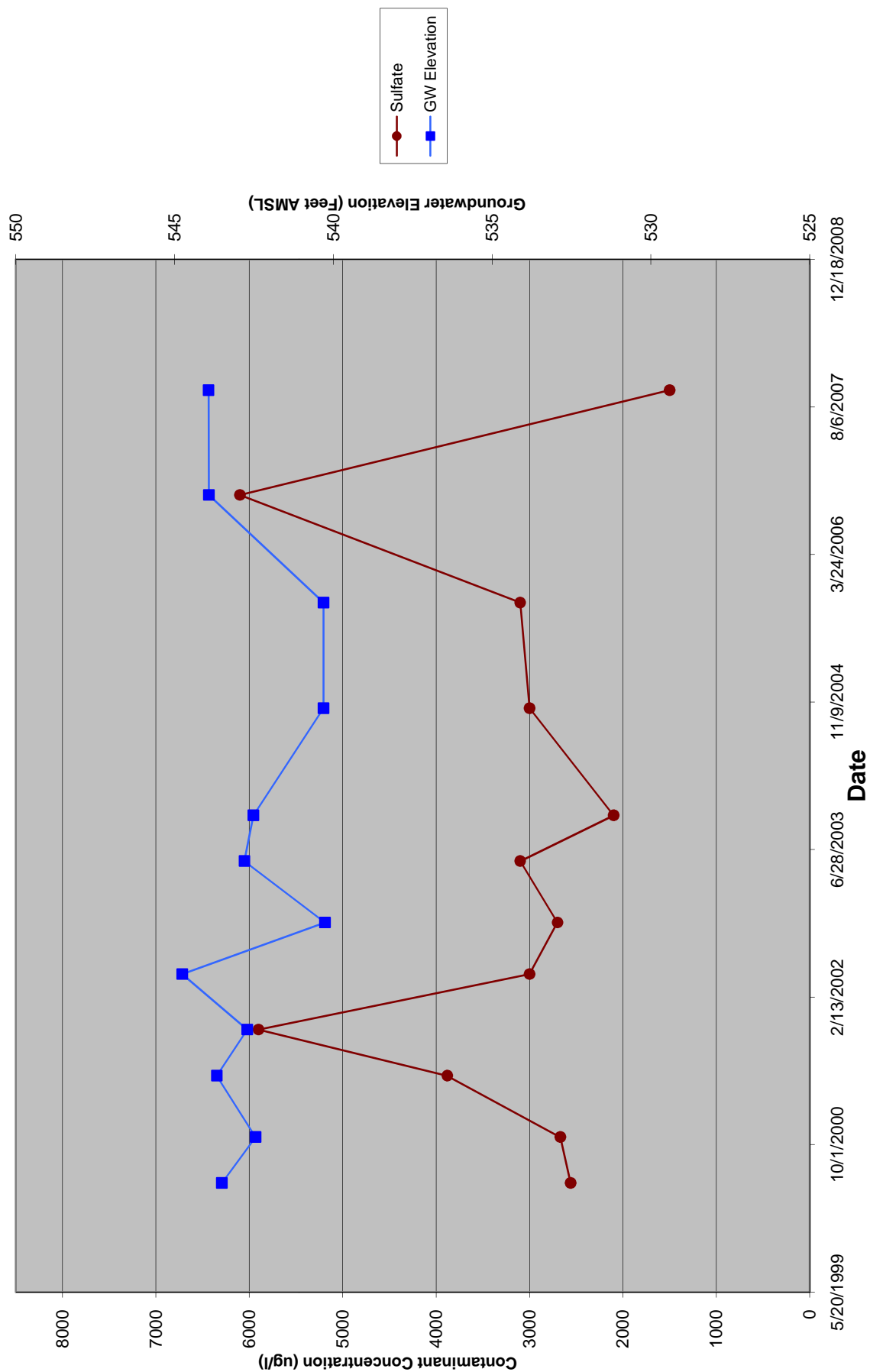
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 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site M1 MW231



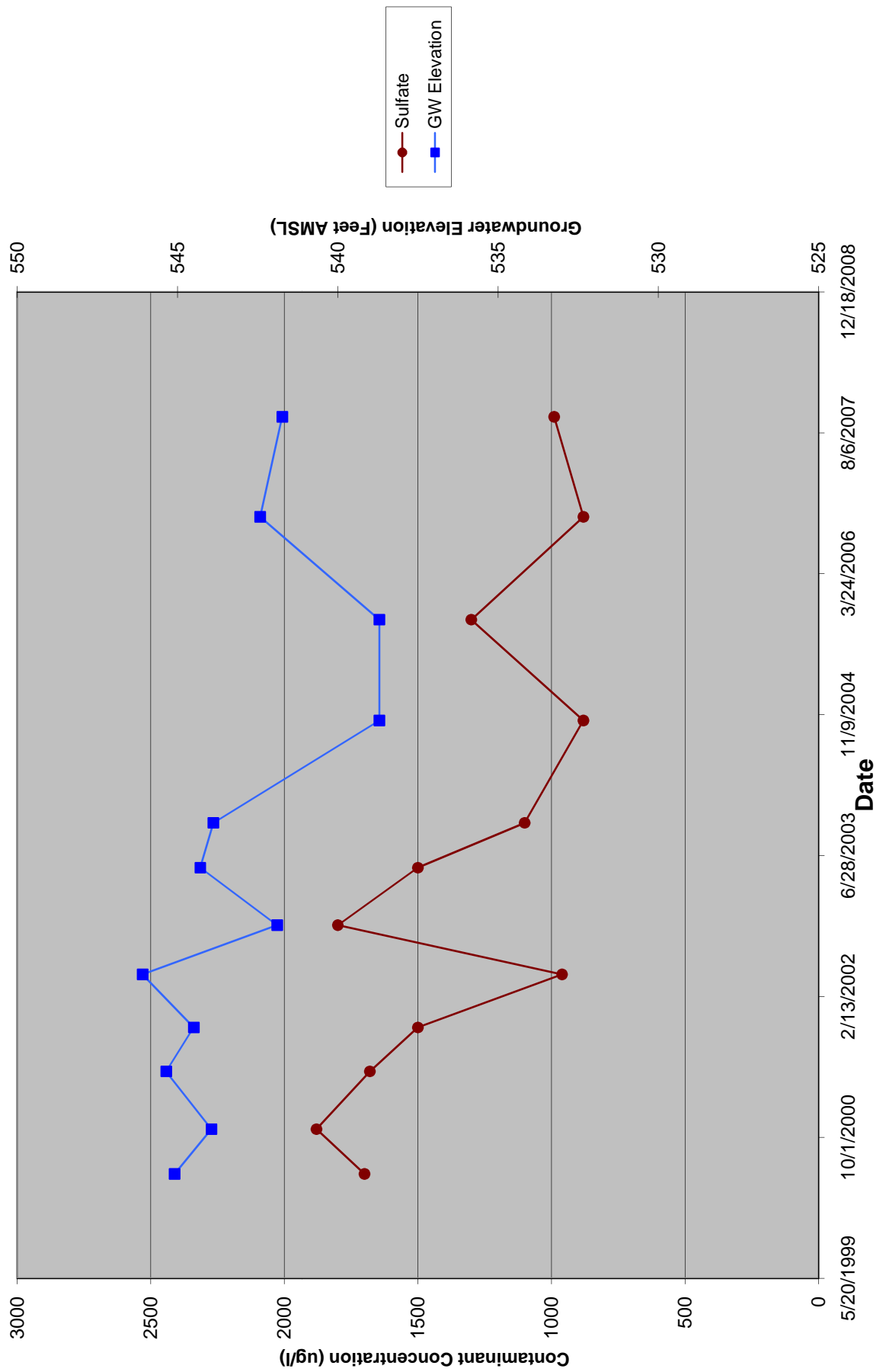
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site M1 MW351



**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Relationship Between Groundwater Elevation and Contaminant Concentration - Site M1 MW640**

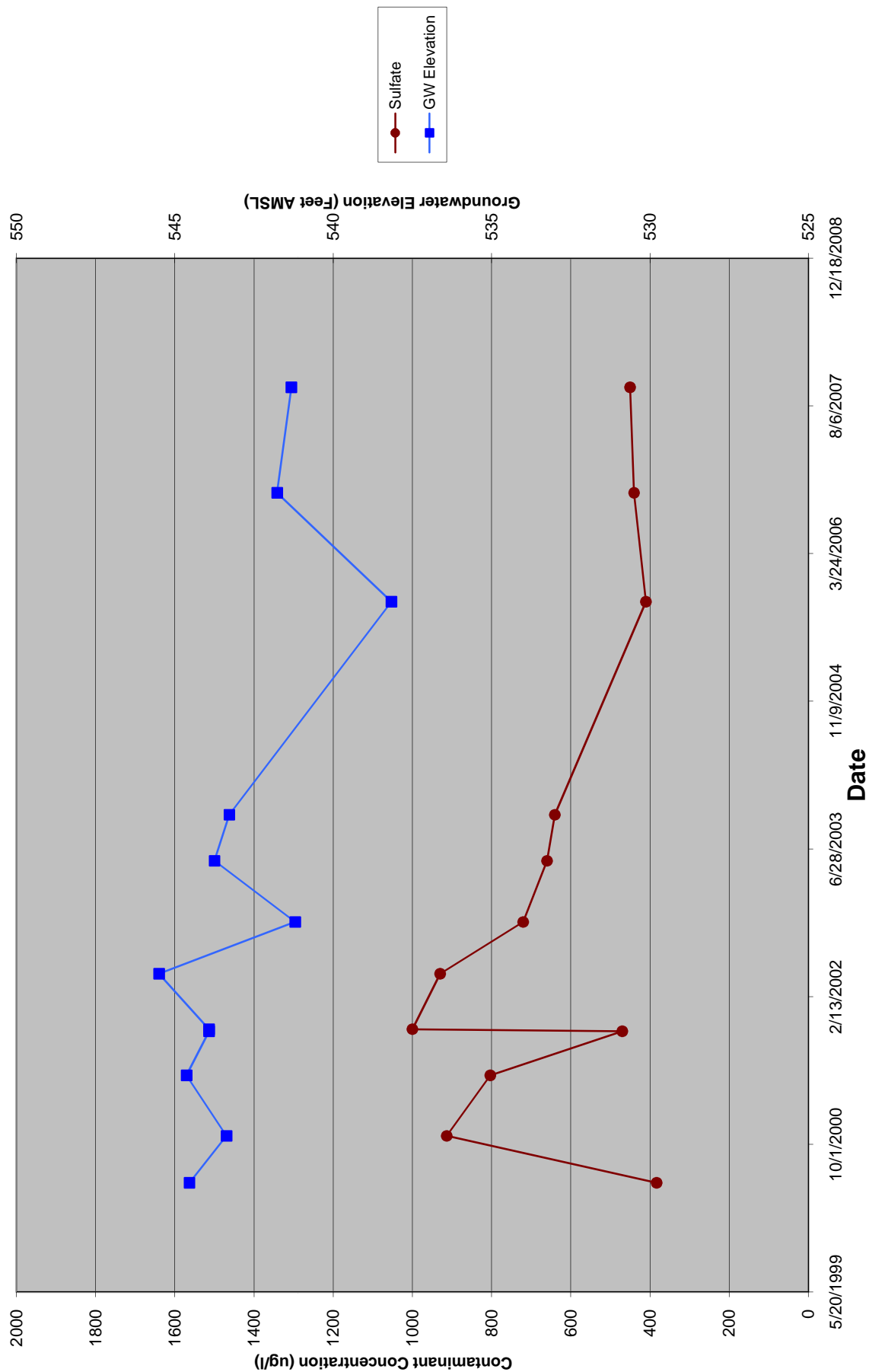


**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Relationship Between Groundwater Elevation and Contaminant Concentration - Site M1 MW641**

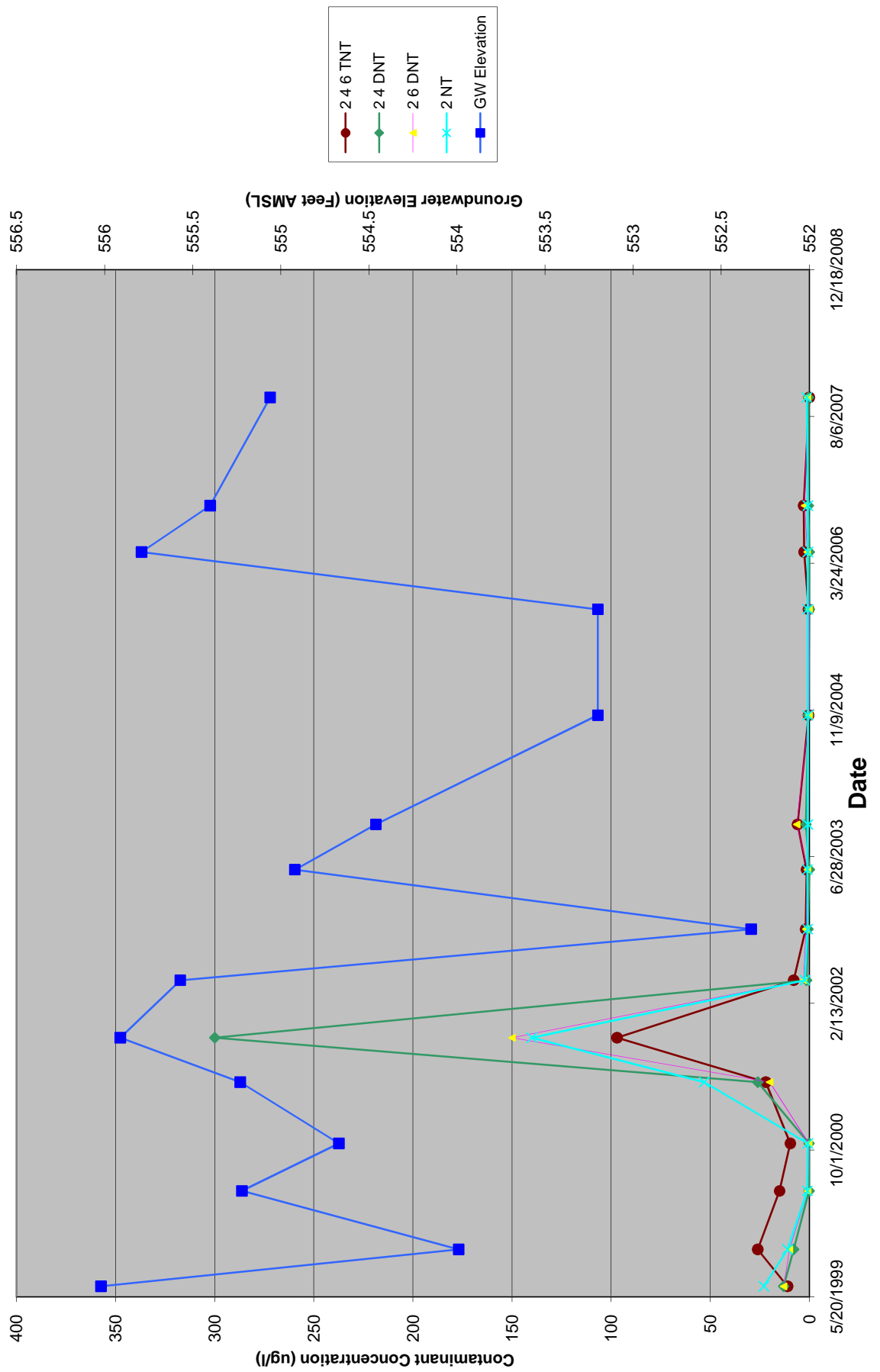




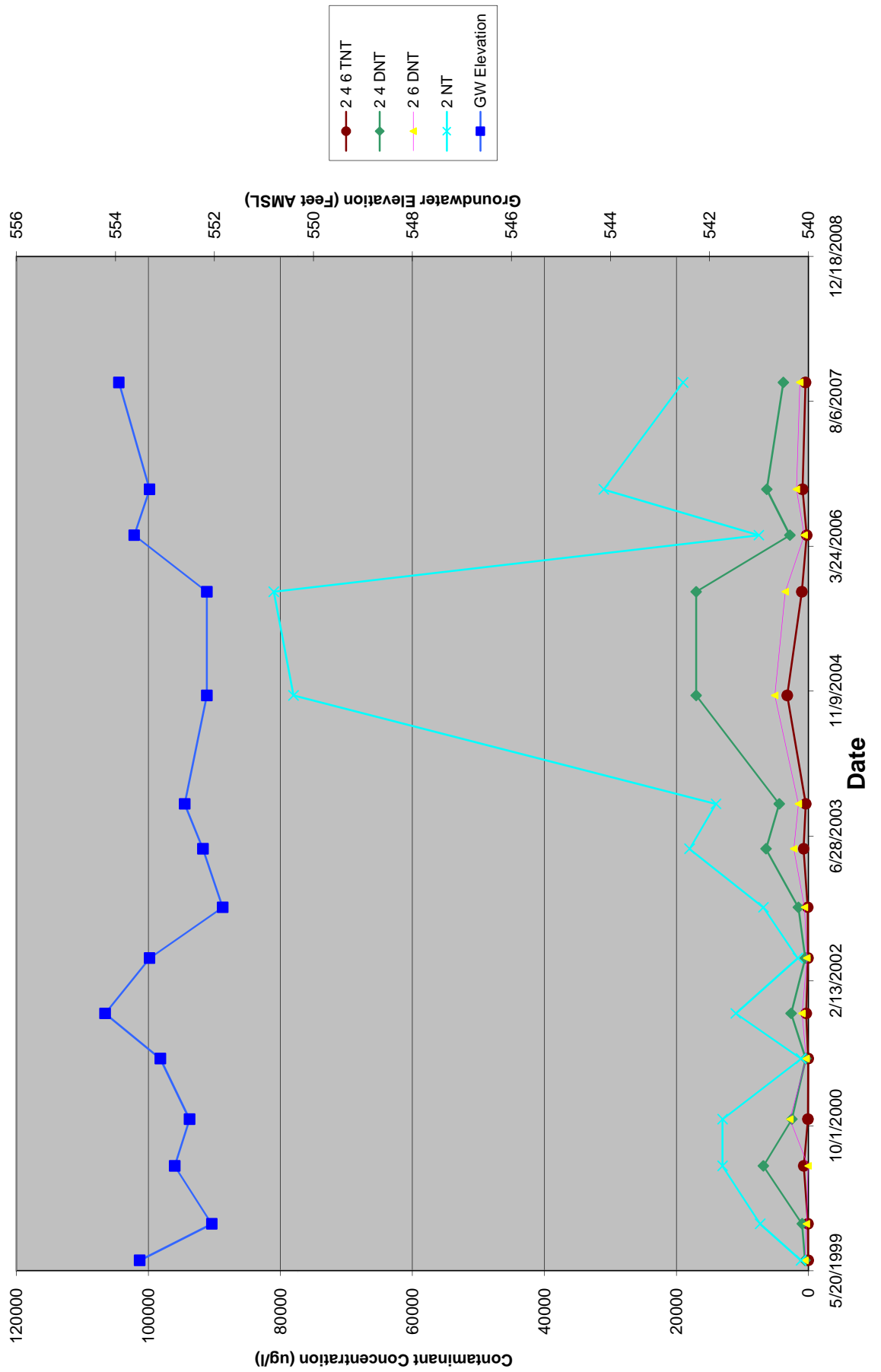
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 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site M1 MW642



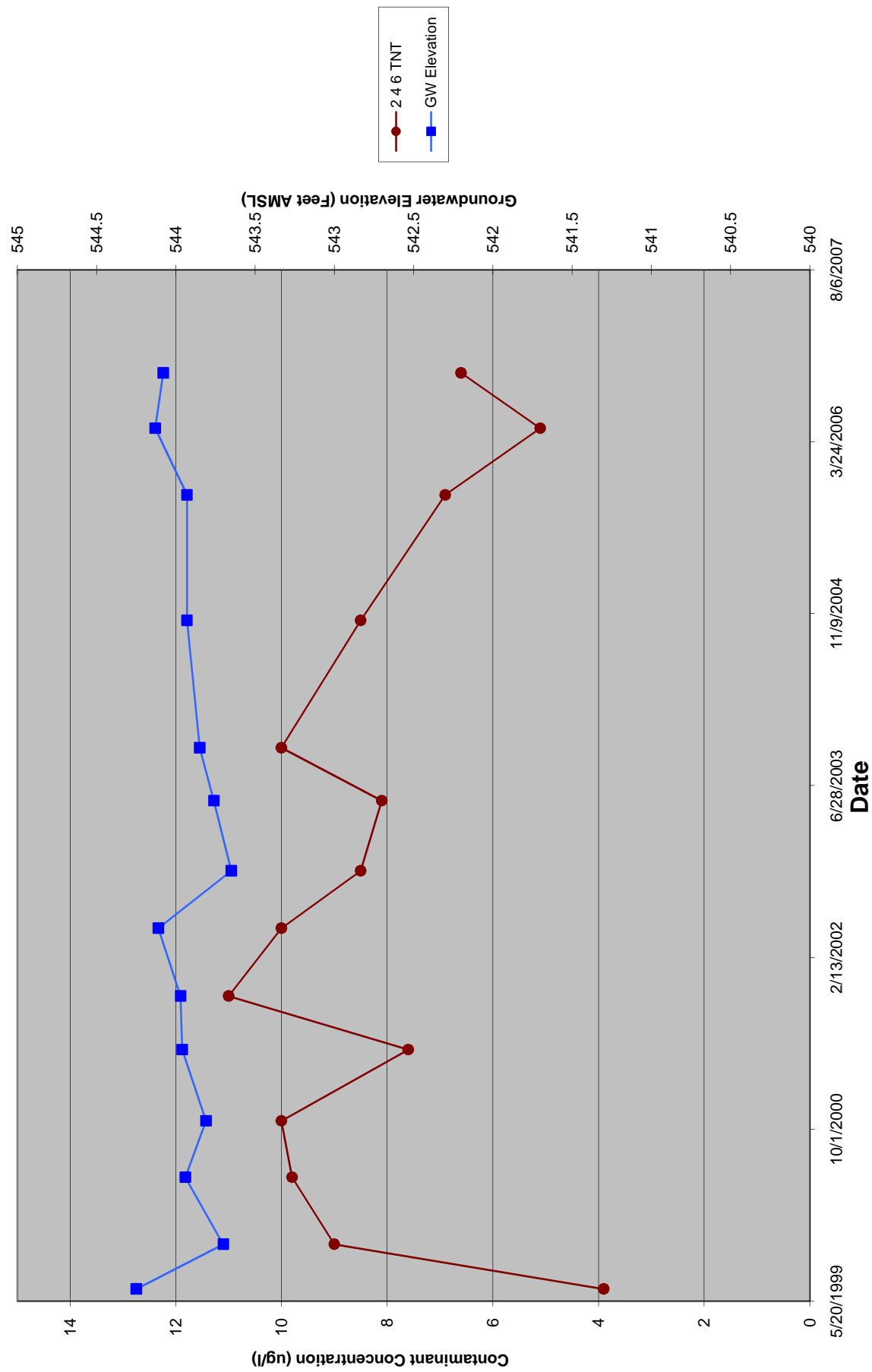
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site M6 MW210R



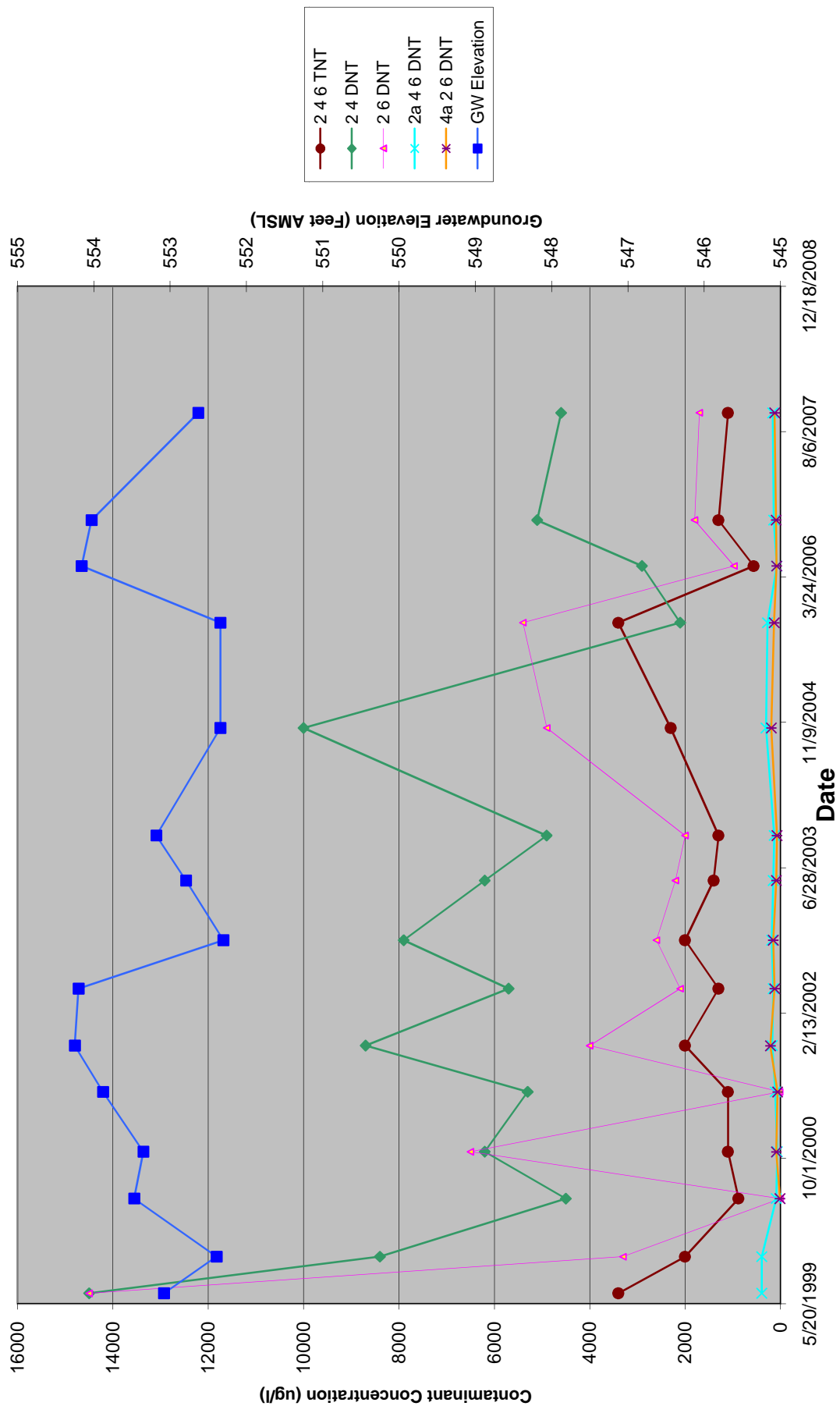
Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site M6 MW212R



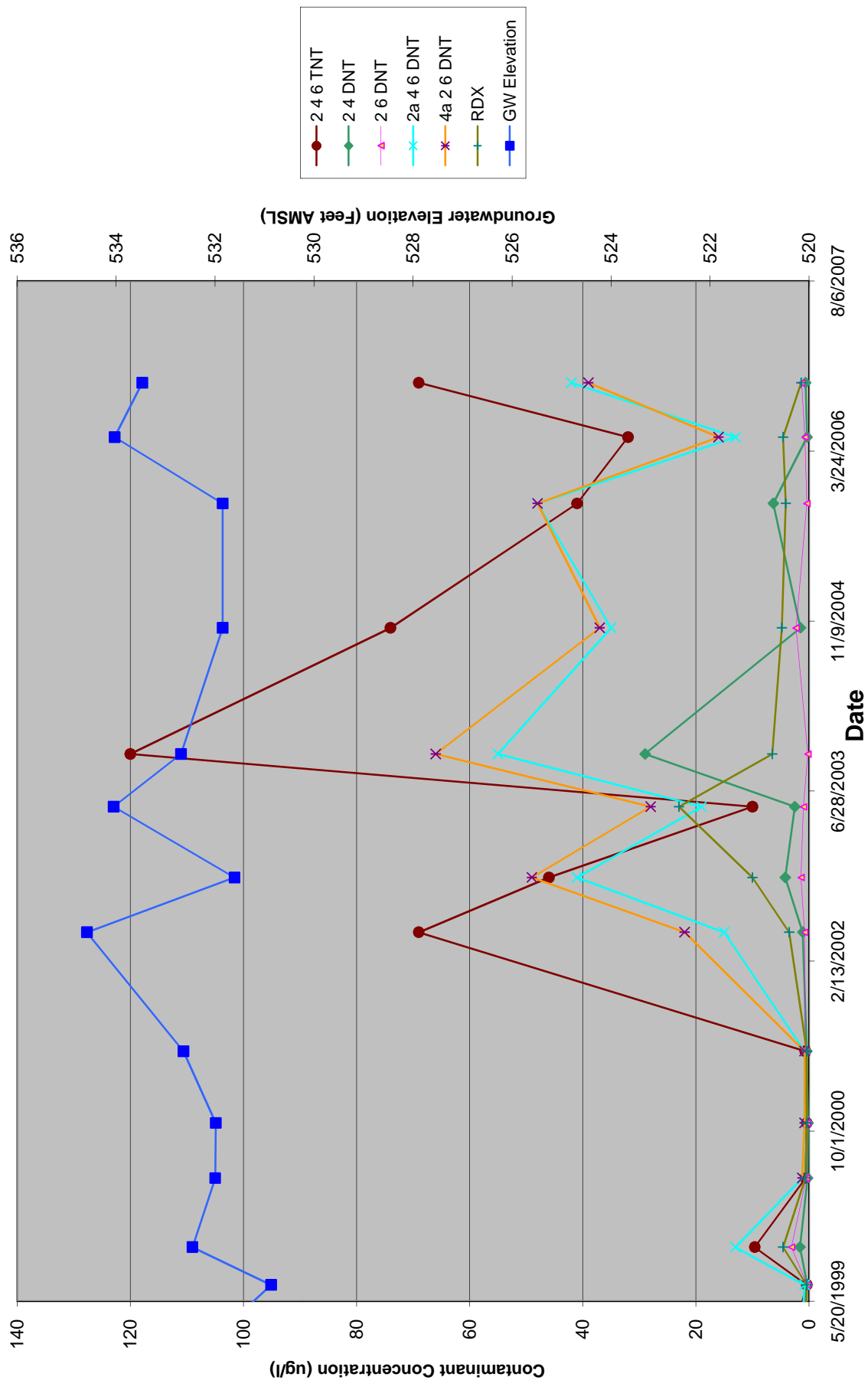
Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Relationship Between Groundwater Elevation and Contaminant Concentration - Site M6 MW307



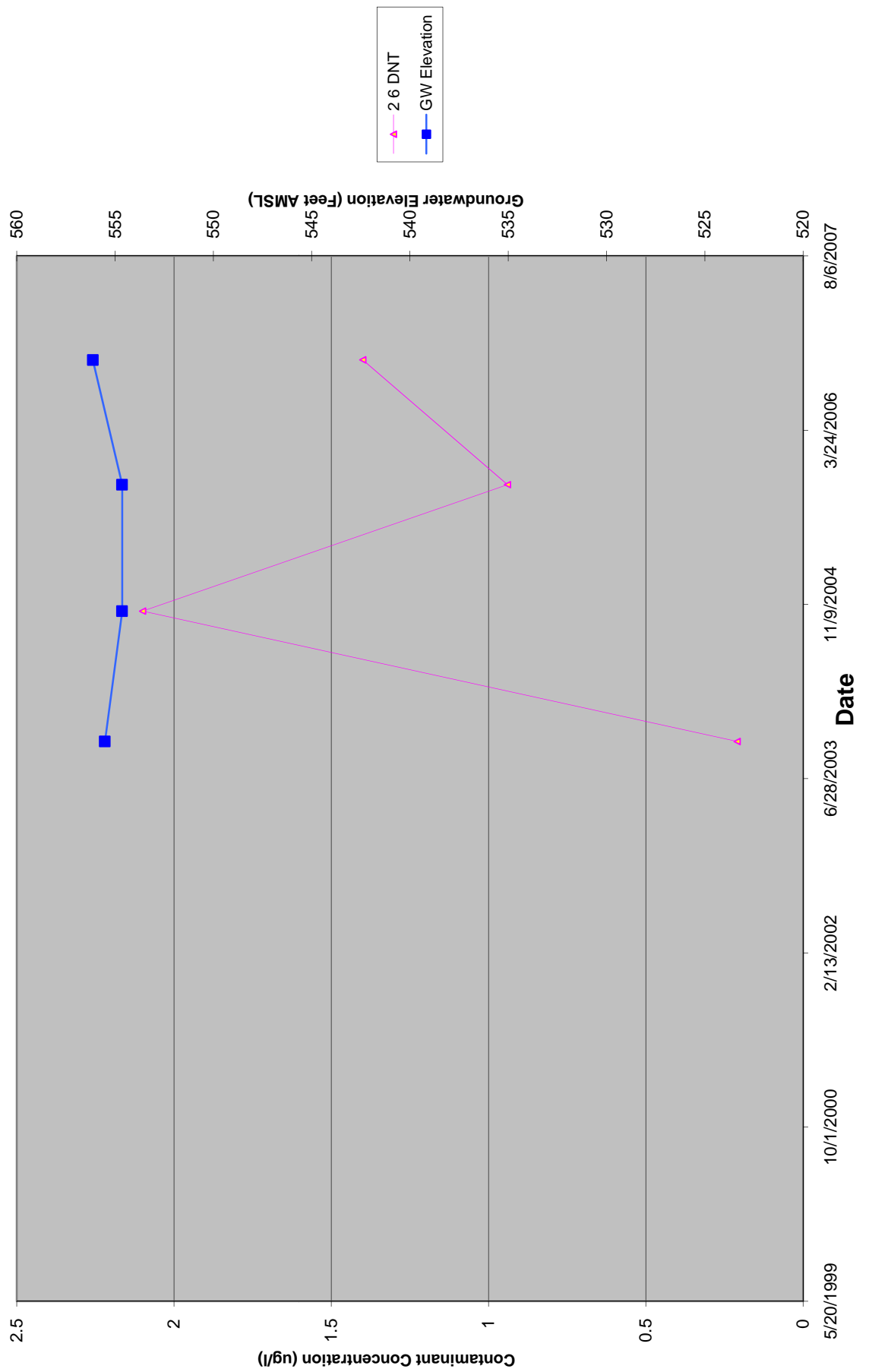
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Joliet Army Ammunition Plant - Wilmington, Illinois  
Relationship Between Groundwater Elevation and Contaminant Concentration - Site M6 MW652**



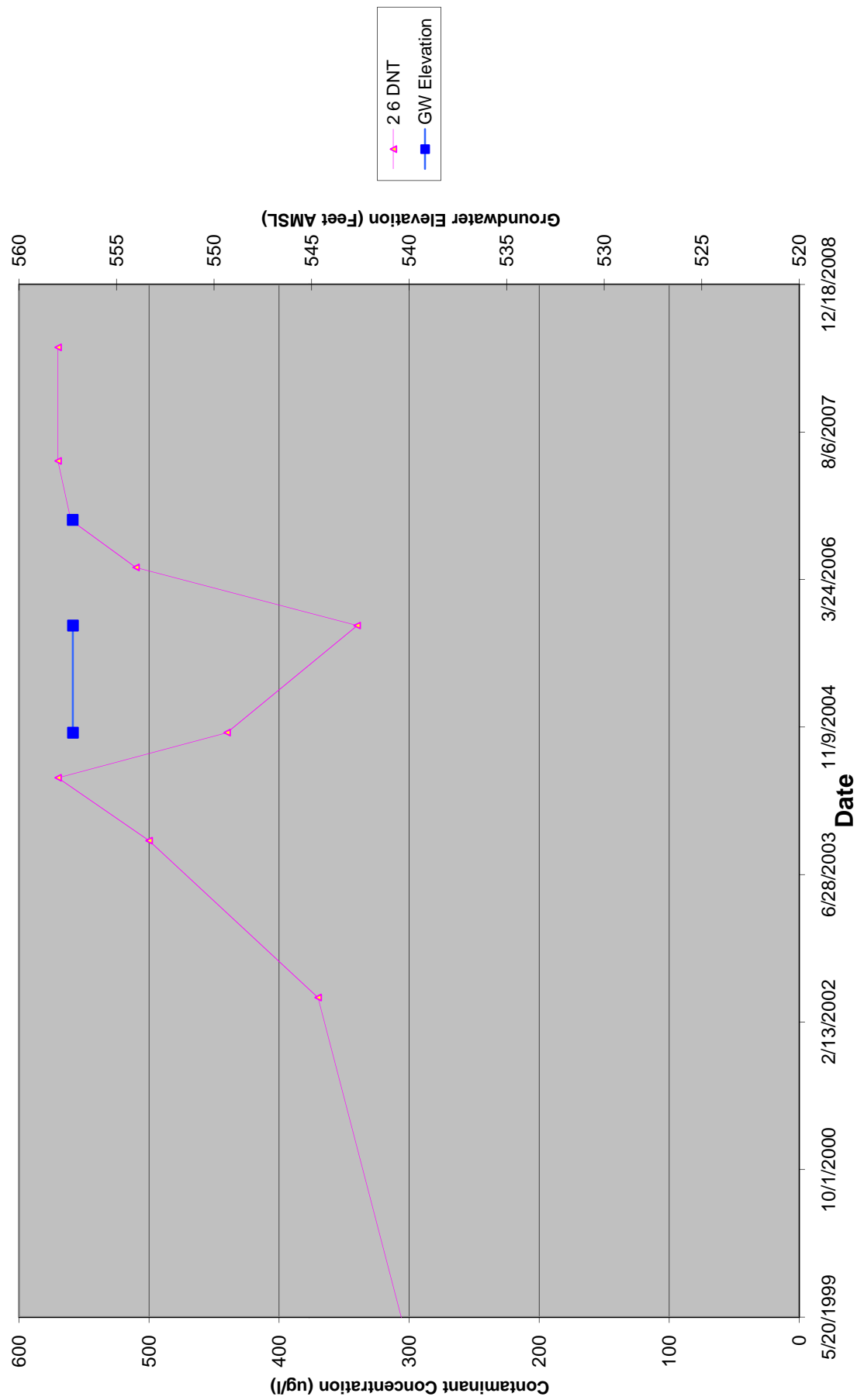
**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Relationship Between Groundwater Elevation and Contaminant Concentration - Site M7 MW124R**



Second Five Year Review Report - Groundwater Operable Unit  
 Joliet Army Ammunition Plant - Wilmington, Illinois  
 Relationship Between Groundwater Elevation and Contaminant Concentration - Site M8 MW325R

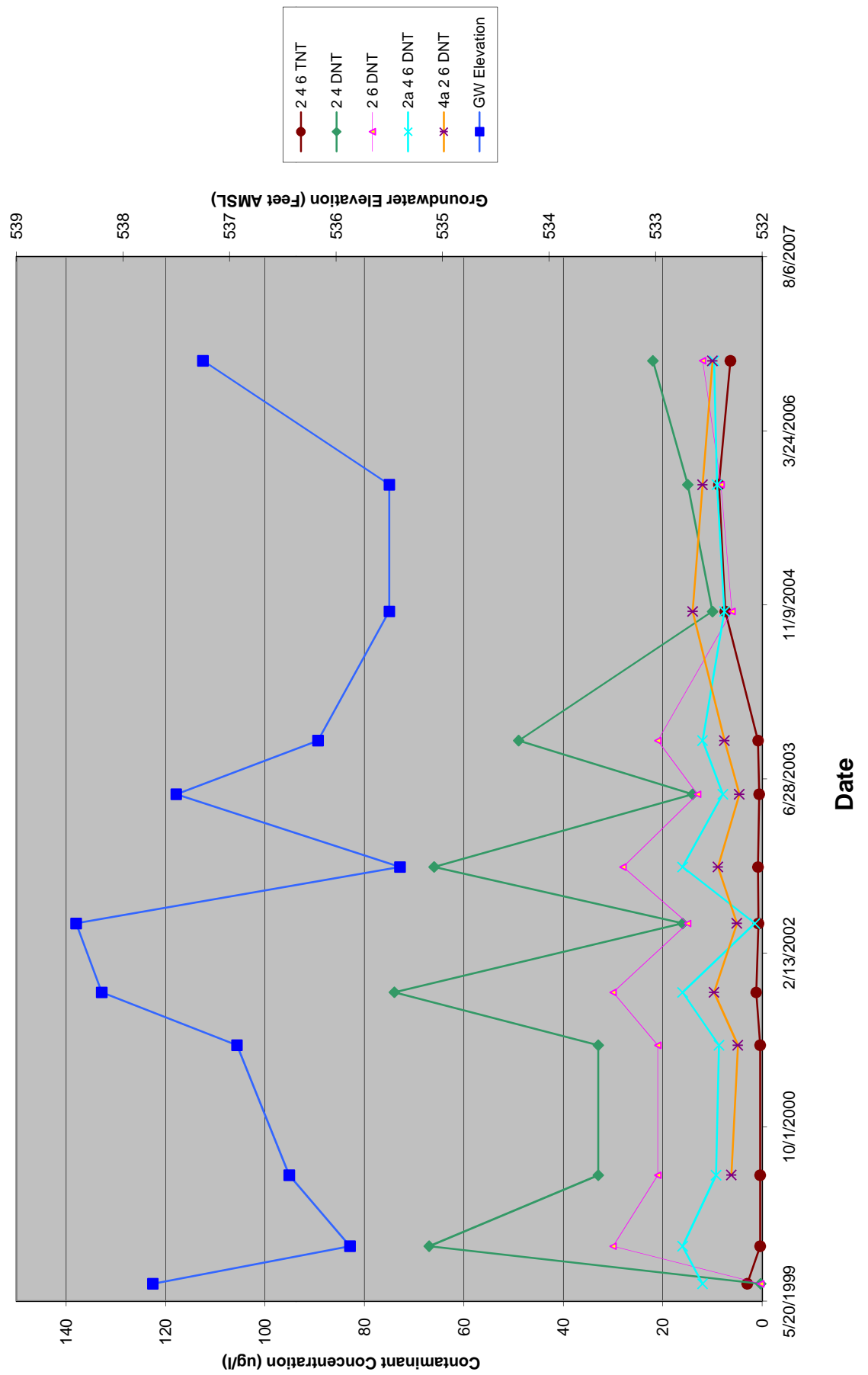


**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Relationship Between Groundwater Elevation and Contaminant Concentration - Site M8 MW330**





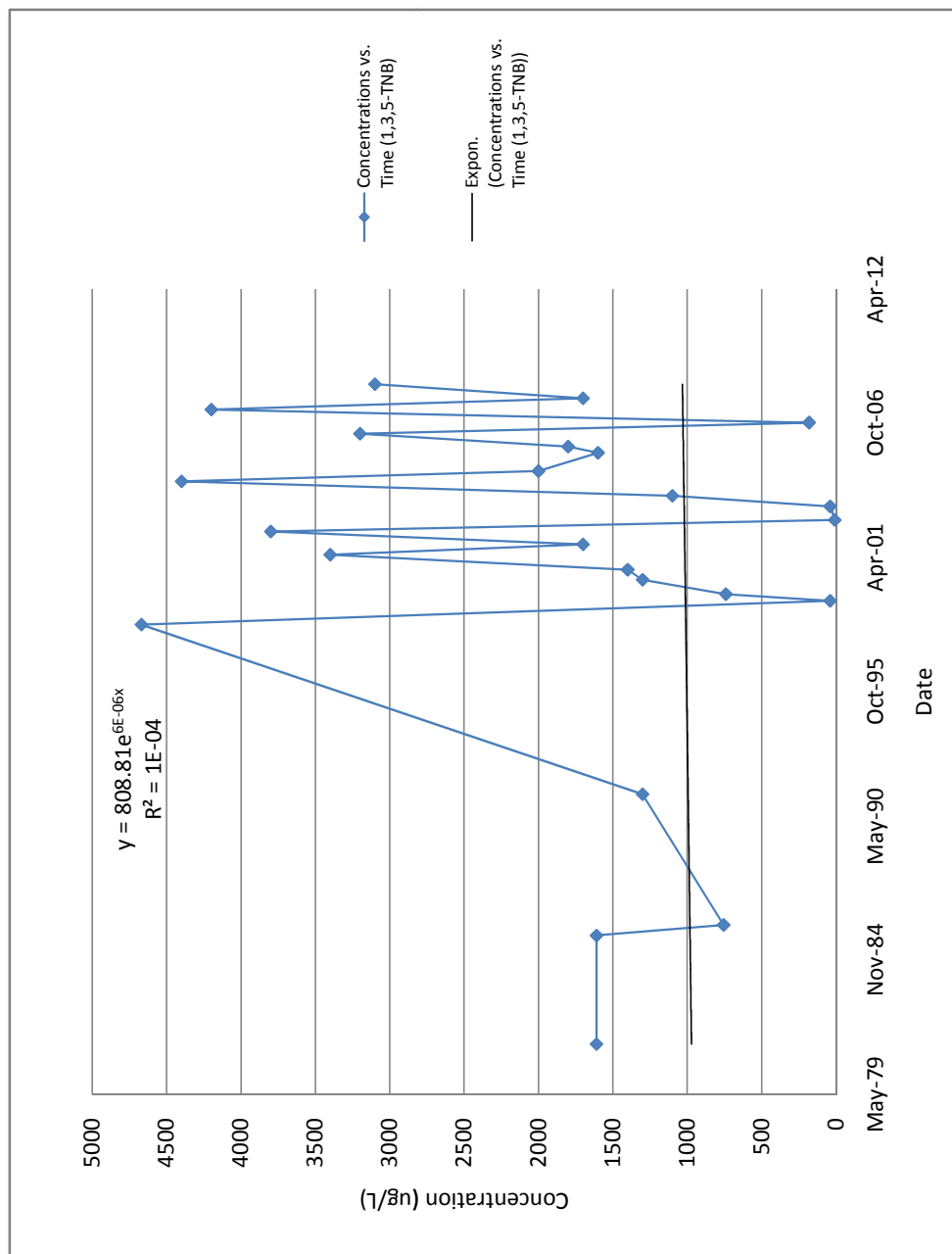
**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Relationship Between Groundwater Elevation and Contaminant Concentration - Site M13 MW321**



**Attachment 8**  
First Order Decay Rate Constant Estimation

Site L1 - MW131  
First Order Decay Rate Constant Estimation  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

Date	1,3,5-TNB (ug/L)
6/10/1981	1610
11/15/1985	1610
4/22/1986	755
8/21/1991	1300
7/23/1998	4670
7/13/1999	39
10/20/1999	740
5/22/2000	1300
10/18/2000	1400
5/29/2001	3400
10/29/2001	1700
5/10/2002	3800
10/28/2002	7.6
5/20/2003	39
10/23/2003	1100
5/26/2004	4400
10/26/2004	2000
7/27/2005	1600
10/25/2005	1800
5/5/2006	3200
10/19/2006	180
5/1/2007	4200
10/16/2007	1700
5/14/2008	3100

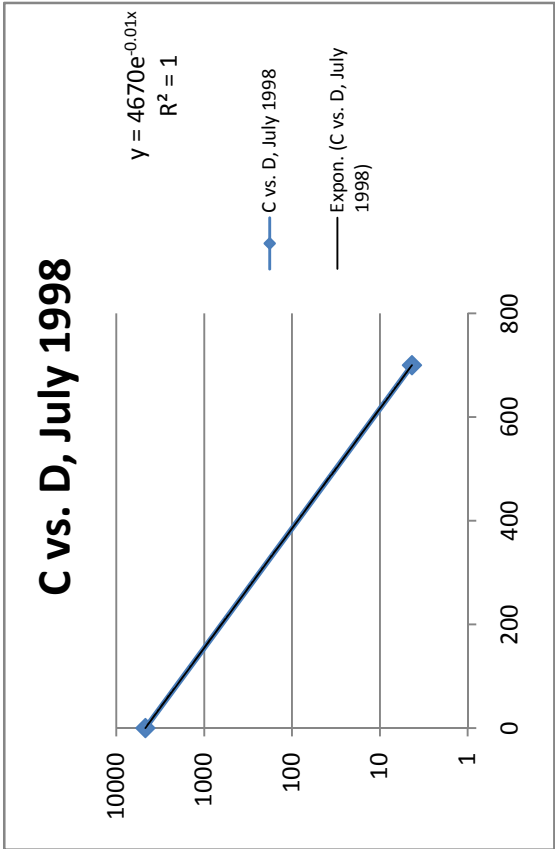
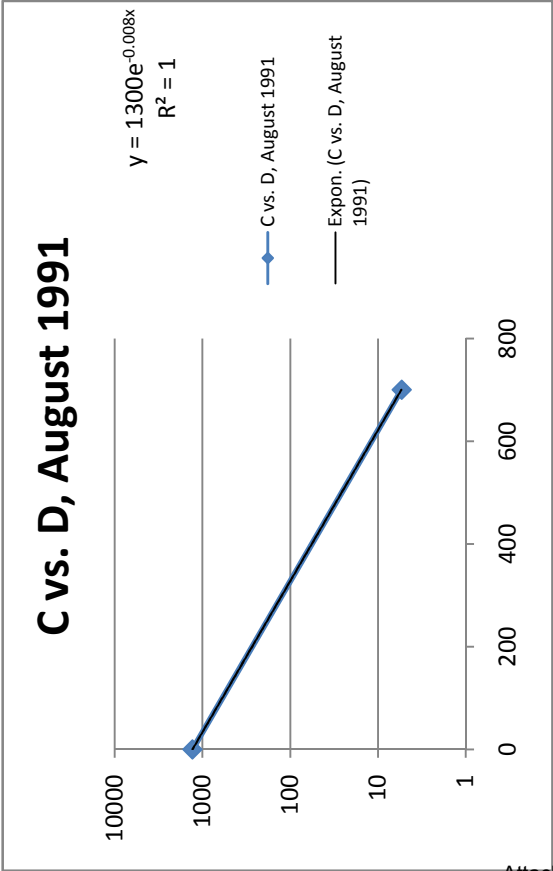
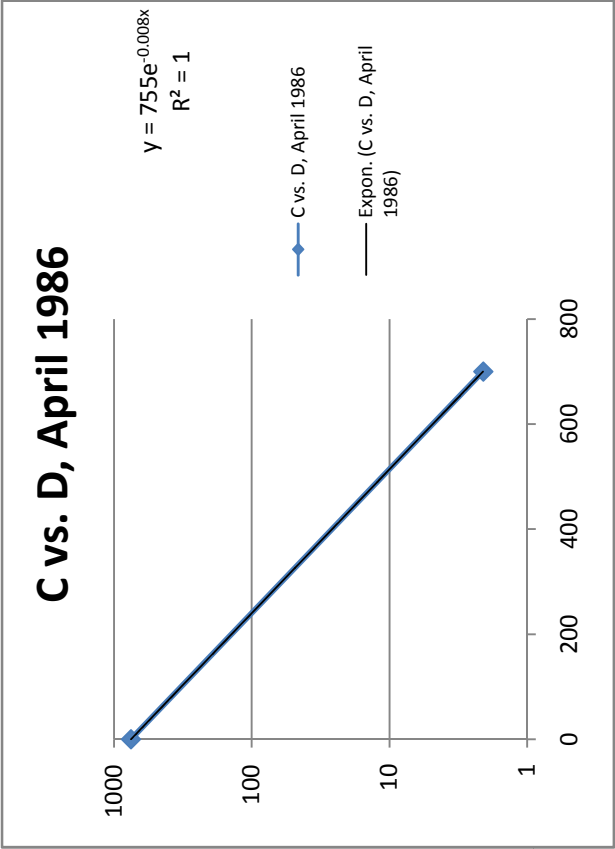
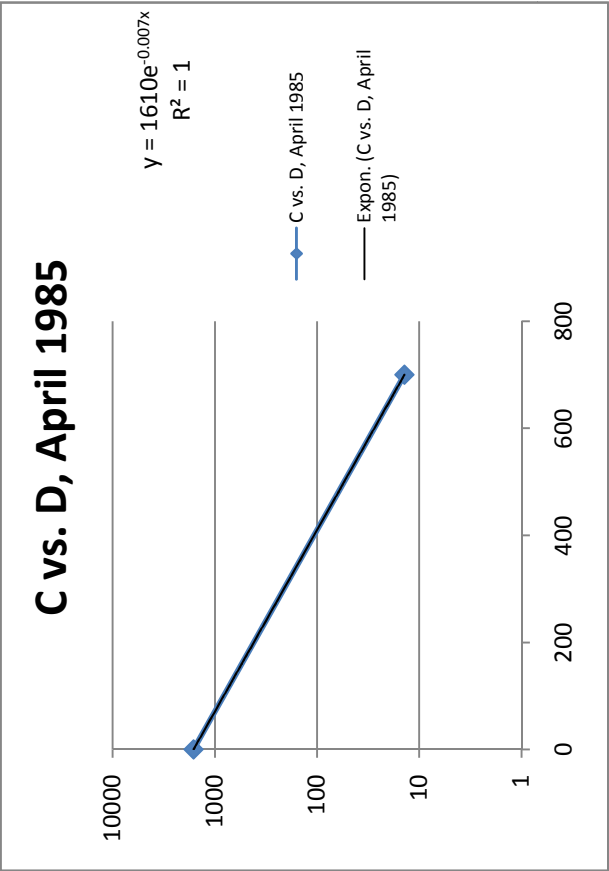


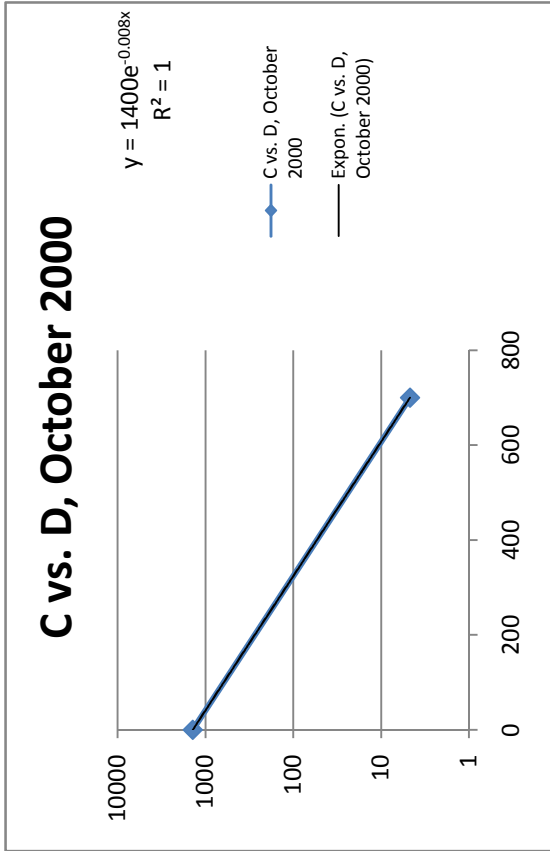
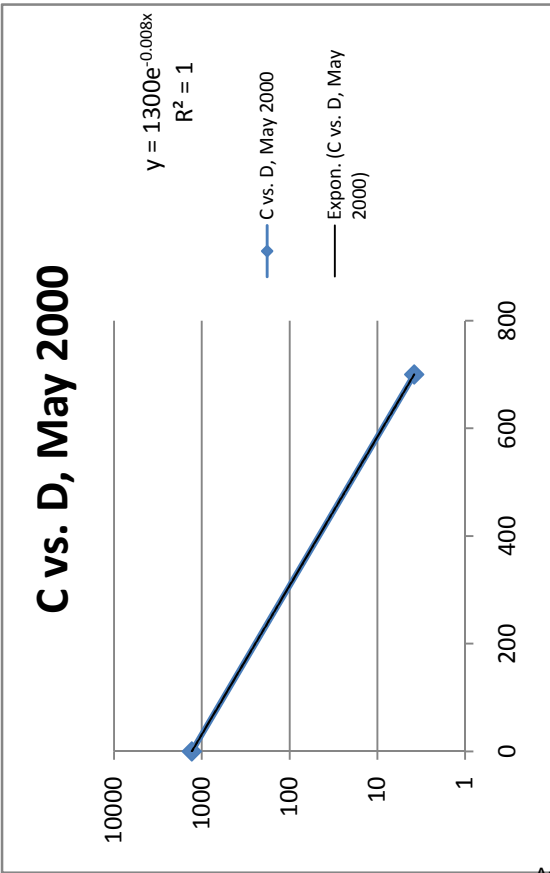
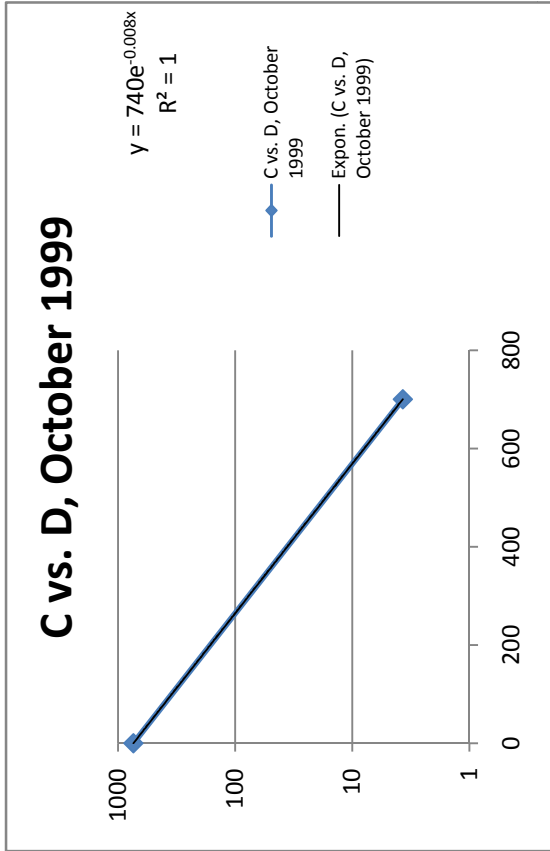
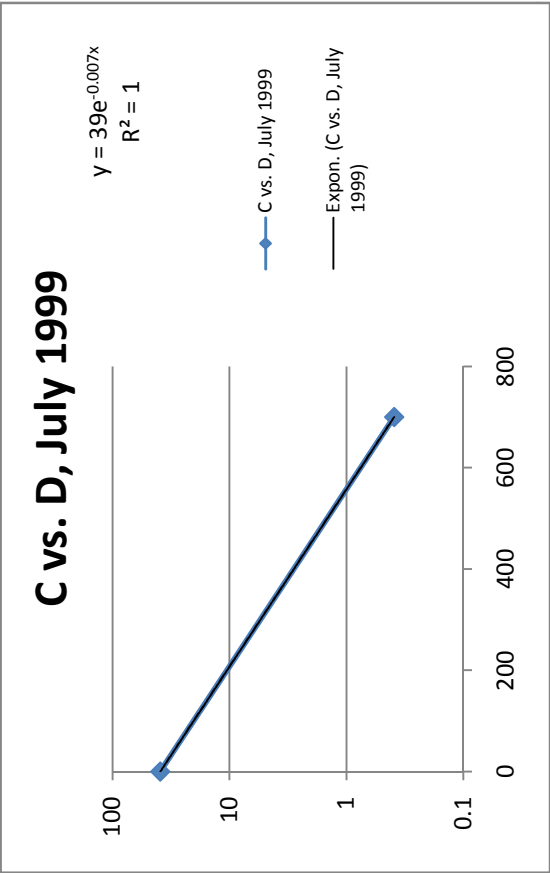
Using equation:  $C(t) = C_i e^{-kt}$   
Where:  
 $C(t)$  is the concentration of the contaminant as a function of time at a monitoring location  
 $C_i$  is the contaminant concentration at the beginning of the analysis  
 $t$  is the elapsed time  
A linear regression of  $\ln(C)$  versus  $t$  gives a slope of  $-k$  and an intercept of  $C_i$  (plotted on chart)  
**First Order Decay Rate Constant ( $k$ ) is negative, indicating an increasing trend.**

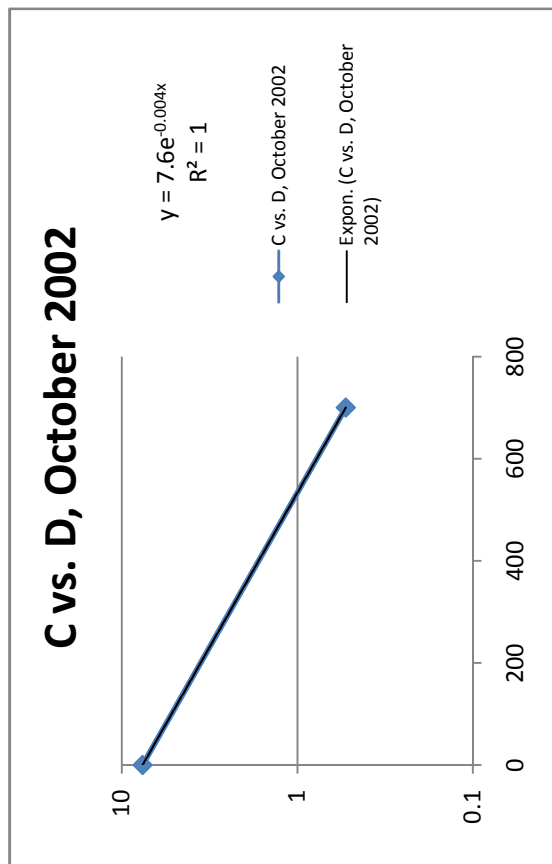
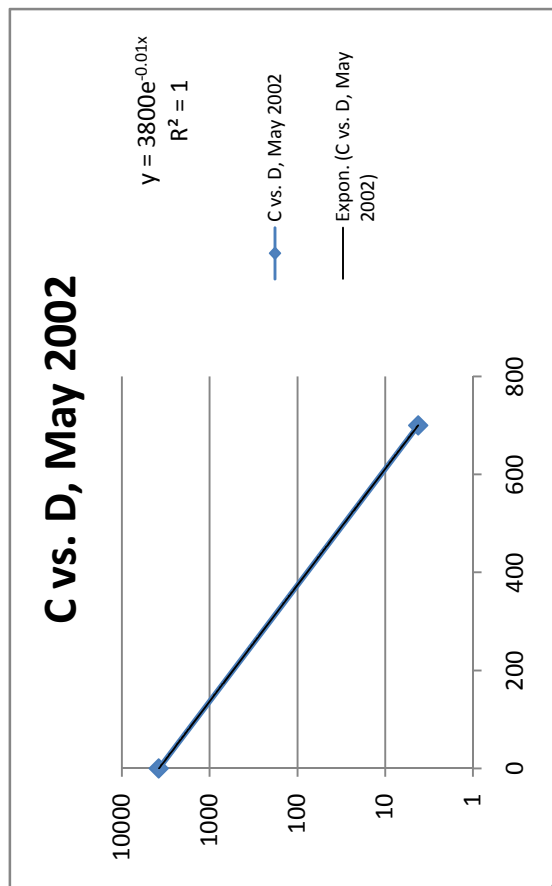
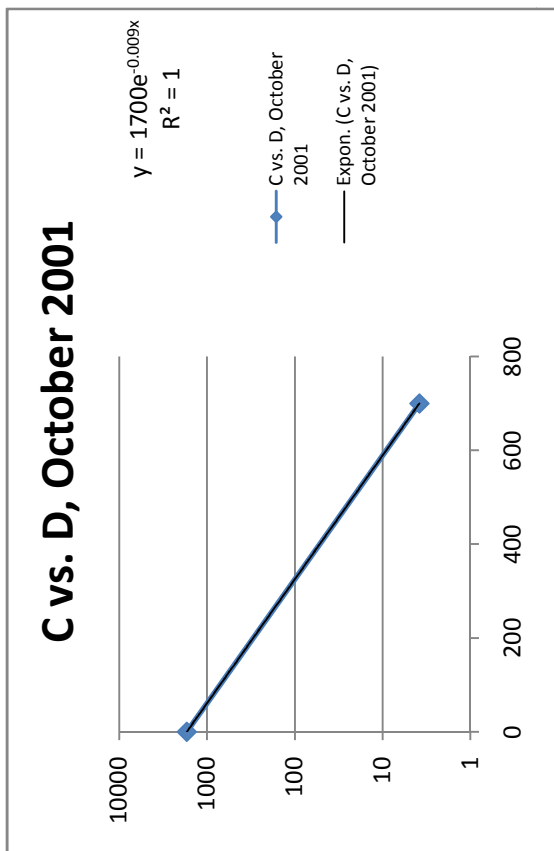
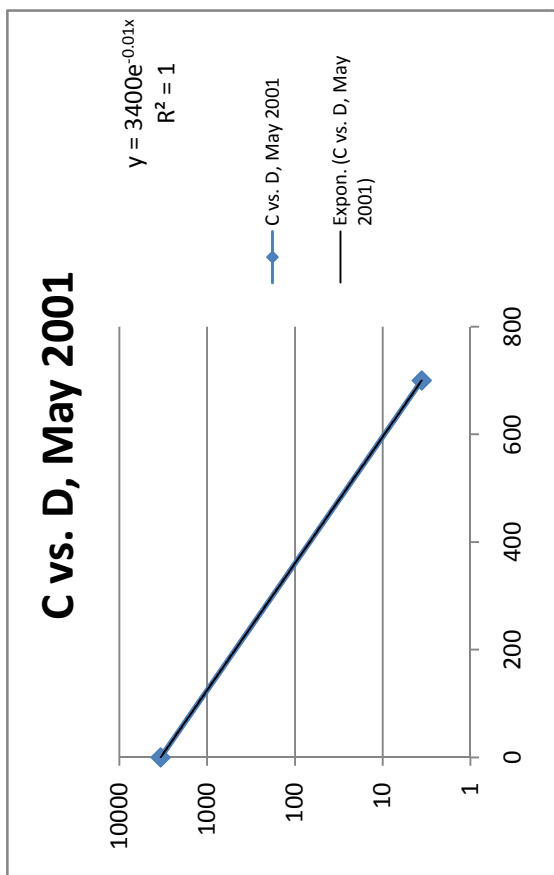
Site L1  
Bulk Decay Rate Constant Estimation (1,3,5-TNB)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

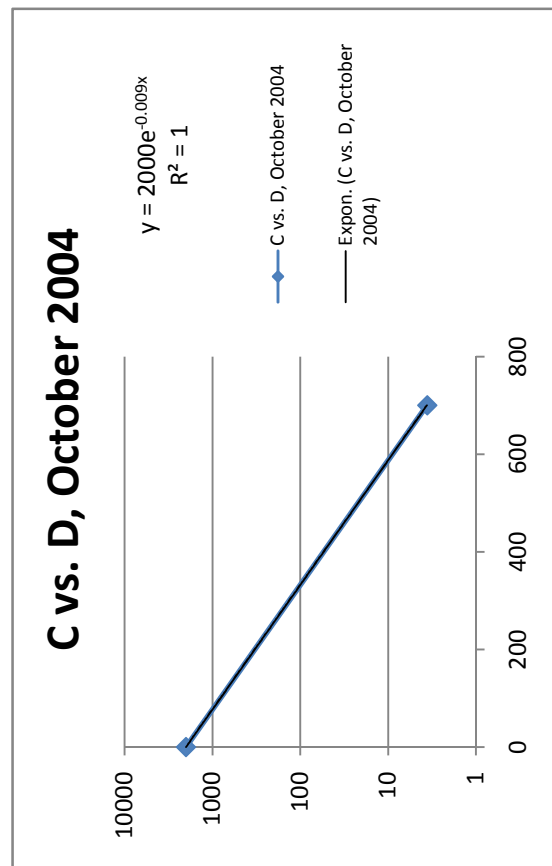
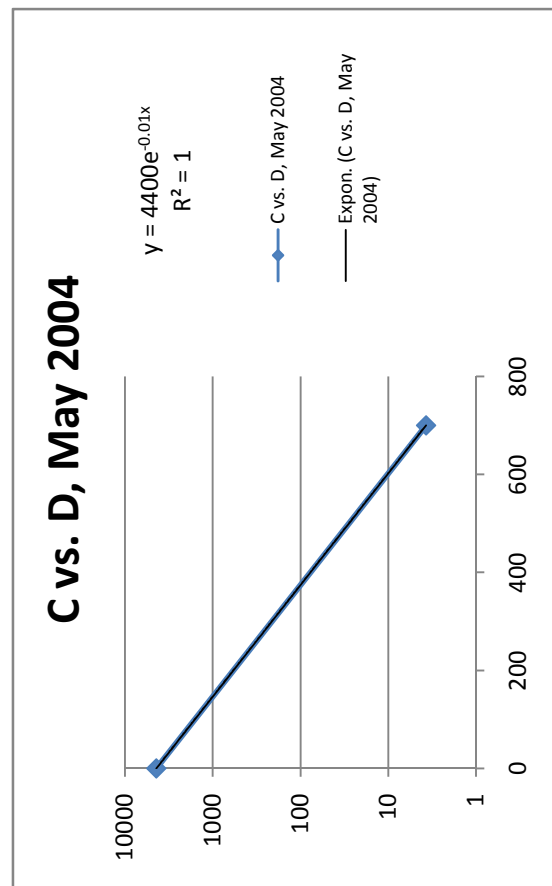
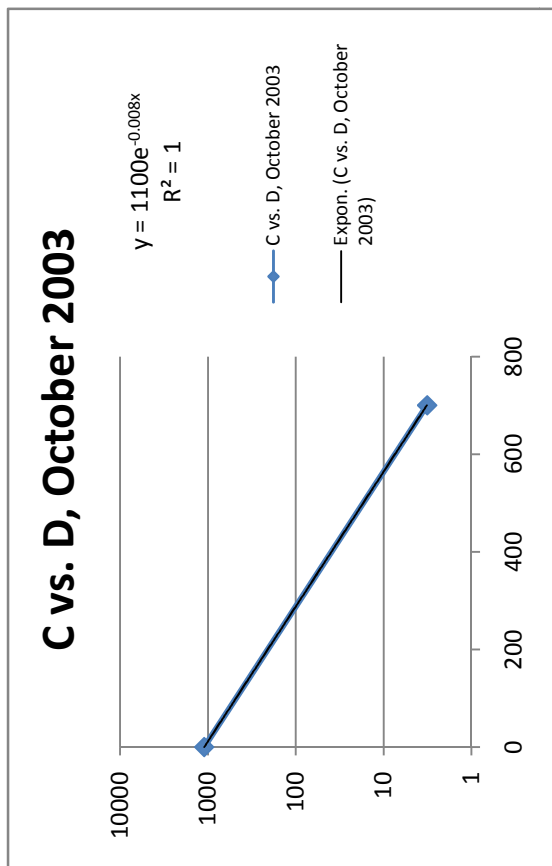
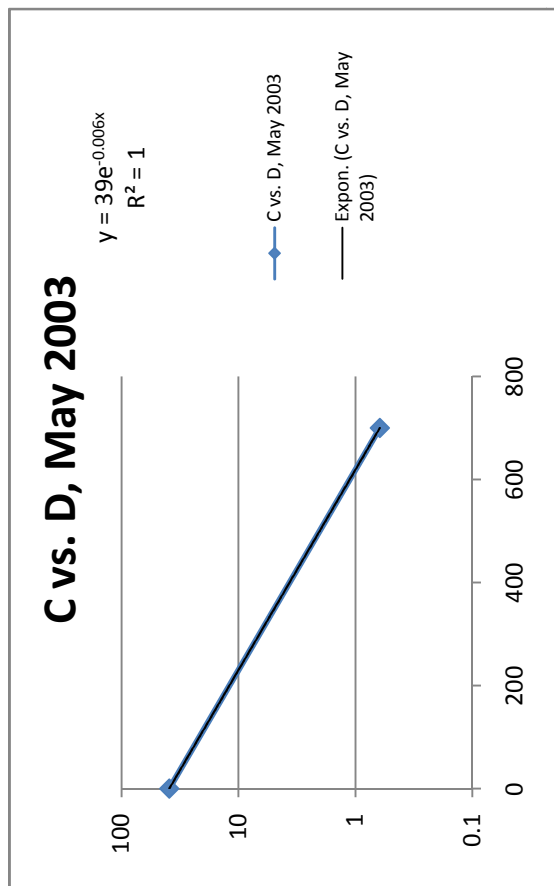
Date	Station	1,3,5-TNB (ug/L)	Station	1,3,5-TNB (ug/L)	Degradation Rate Constant (per foot)	Hydraulic Gradient (i)	Seepage Velocity (ft/year)	Bulk Attenuation Rate (per year)	Half Life (years)
Nov-85	MW131	1610	MW173	14	0.007				
Apr-86	MW131	755	MW173	2.09	0.008				
Aug-91	MW131	1300	MW173	5.38	0.008				
Jul-98	MW131	4670	MW173	4.3	0.01				
Jul-99	MW131	39	MW173	0.39	0.007	0.0071	2.2	1.53E-02	45.3
Oct-99	MW131	740	MW173	3.7	0.008	0.0012	0.4	2.88E-03	240.9
May-00	MW131	1300	MW173	3.8	0.008	0.0029	0.9	7.23E-03	95.9
Oct-00	MW131	1400	MW173	4.7	0.008	0.0024	0.7	5.96E-03	116.2
May-01	MW131	3400	MW173	3.6	0.01	0.0055	1.7	1.70E-02	40.8
Oct-01	MW131	1700	MW173	3.8	0.009	0.0025	0.8	6.91E-03	100.3
May-02	MW131	3800	MW173	4.2	0.01	0.014	4.3	4.28E-02	16.2
Oct-02	MW131	7.6	MW173	0.53	0.004	0.0007	0.2	9.12E-04	759.6
May-03	MW131	39	MW173	0.62	0.006	0.0013	0.4	2.34E-03	295.9
Oct-03	MW131	1100	MW173	3.2	0.008	0.0025	0.8	6.04E-03	114.8
May-04	MW131	4400	MW173	3.7	0.01				
Oct-04	MW131	2000	MW173	3.6	0.009				
Jul-05	MW131	1600	MW173	2.3	0.009	0.0027	0.8	7.34E-03	94.4
Oct-05	MW131	1800	MW173	2.2	0.01	0.0008	0.2	2.37E-03	292.6
May-06	MW131	3200	MW173	2.5	0.01	0.0054	1.7	1.67E-02	41.6
Oct-06	MW131	180	MW173	0.59	0.008	0.0046	1.4	1.14E-02	60.8
May-07	MW131	4200	MW173	3	0.01	0.0097	3.0	2.98E-02	23.3
Oct-07	MW131	1700	MW173	0.027	0.016	0.0064	2.0	3.12E-02	22.2
May-08	MW131	3100	MW173	1.4	0.011				
					0.009	0.0044	1.3	1.19E-02	58.5

Average hydraulic conductivity (cm/s) = 1.00E-04  
 Effective Porosity = 33.7%  
 Retardation Factor = 1  
 Distance from MW131 to MW173 is approximately 700 feet

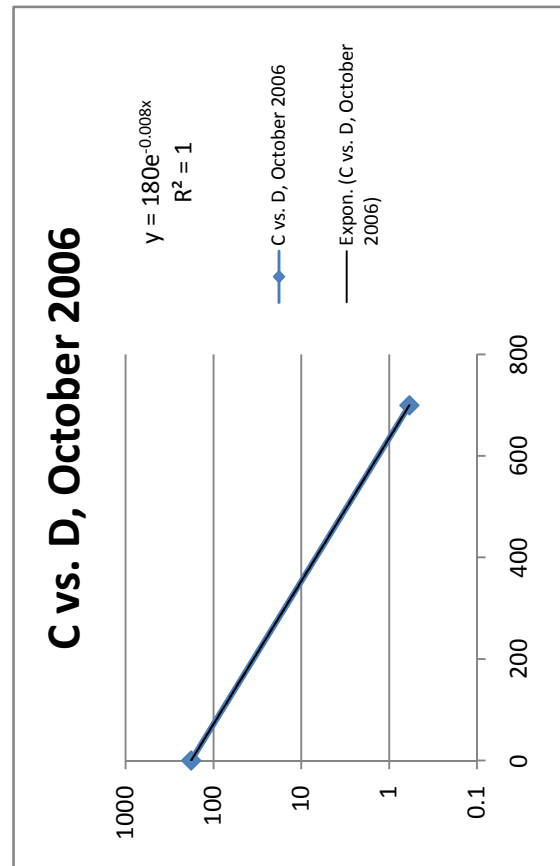
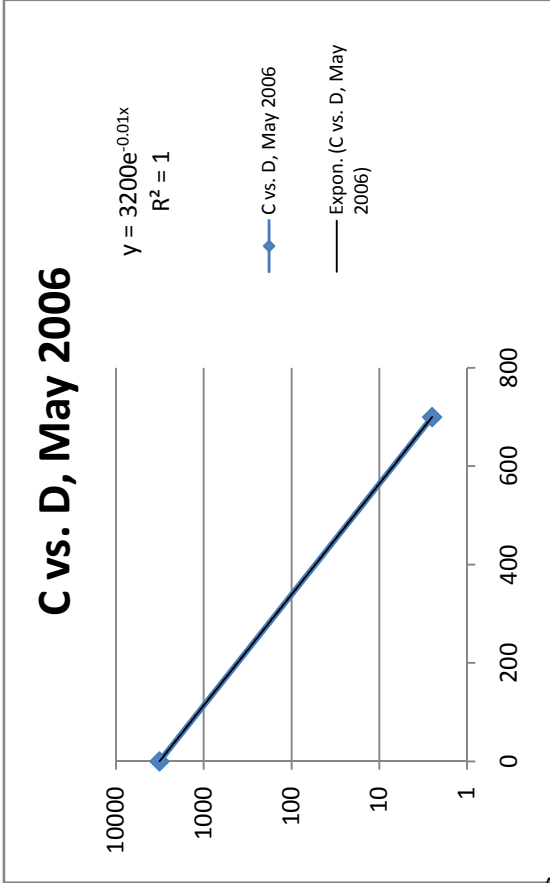
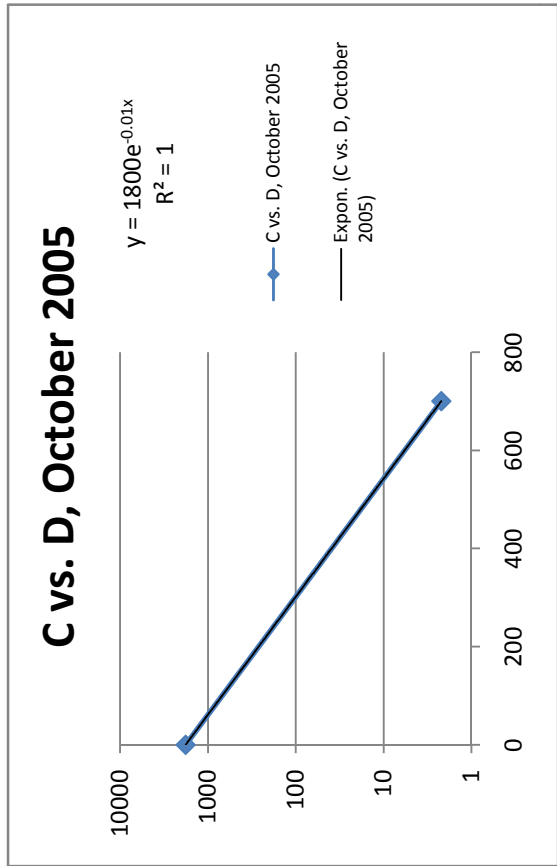
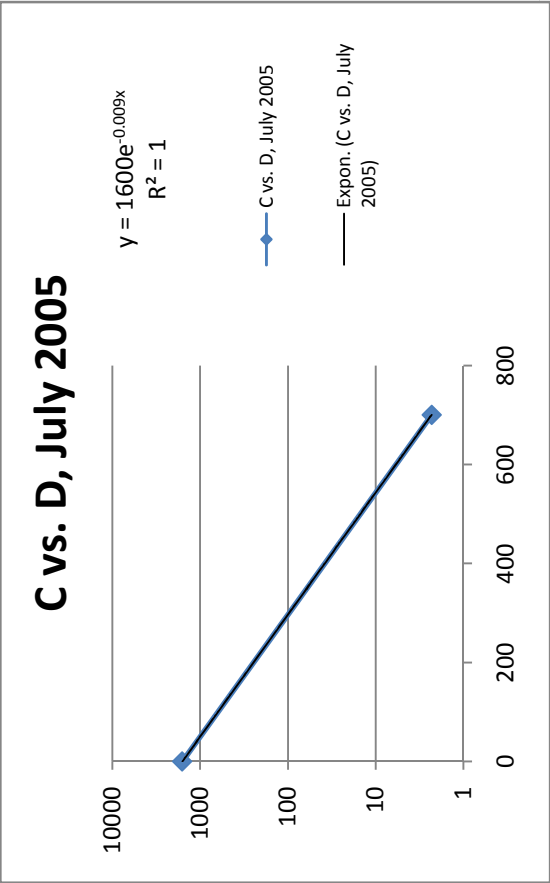


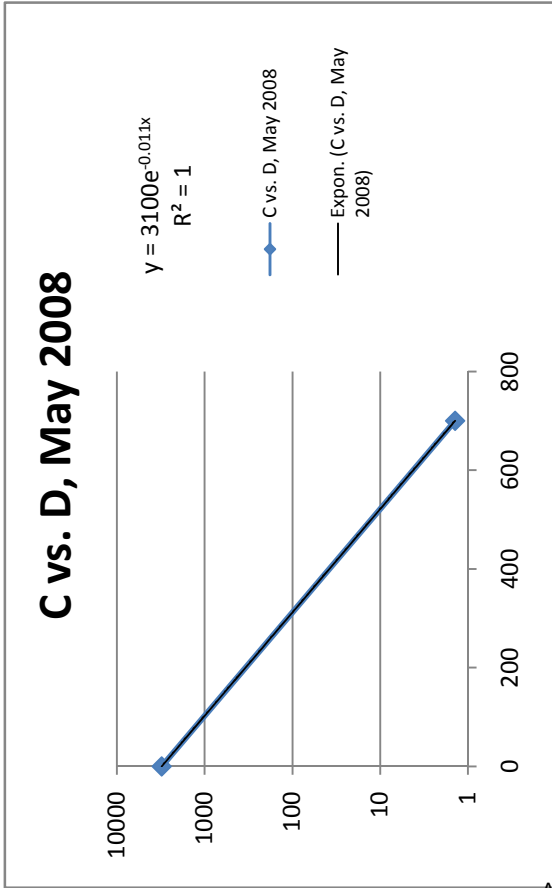
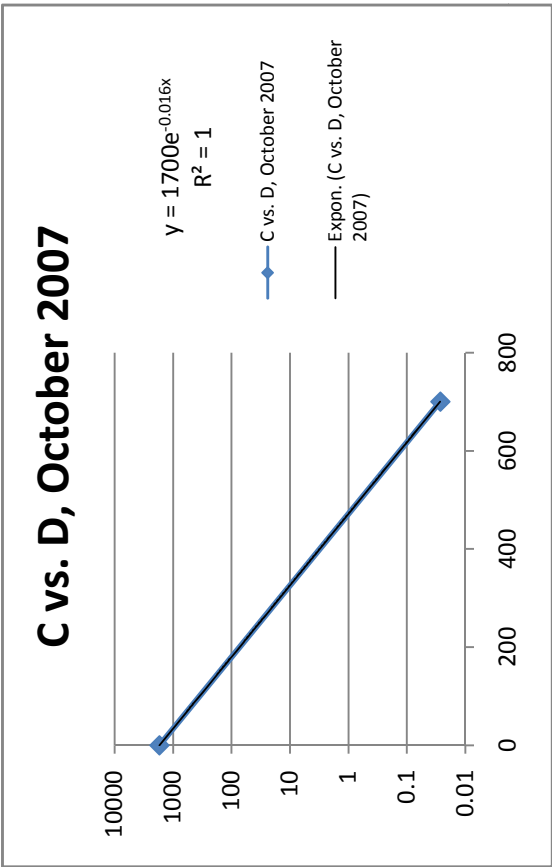
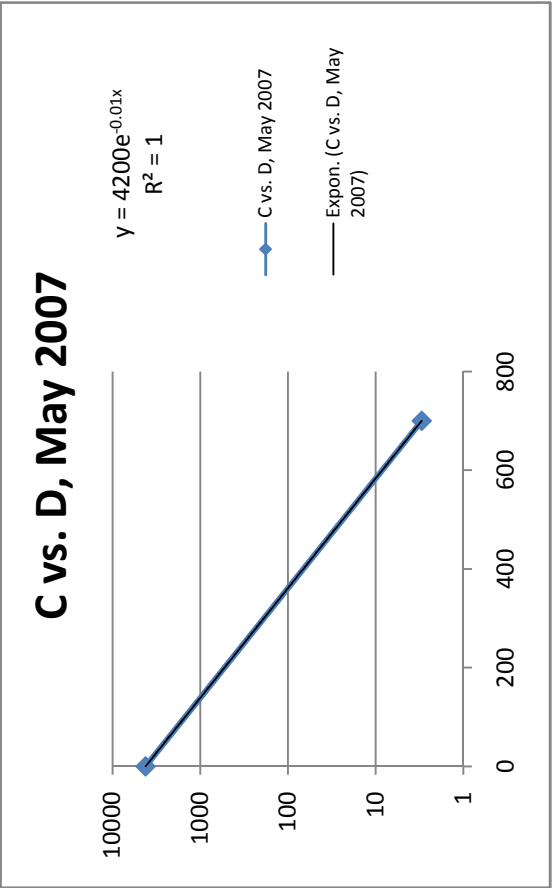




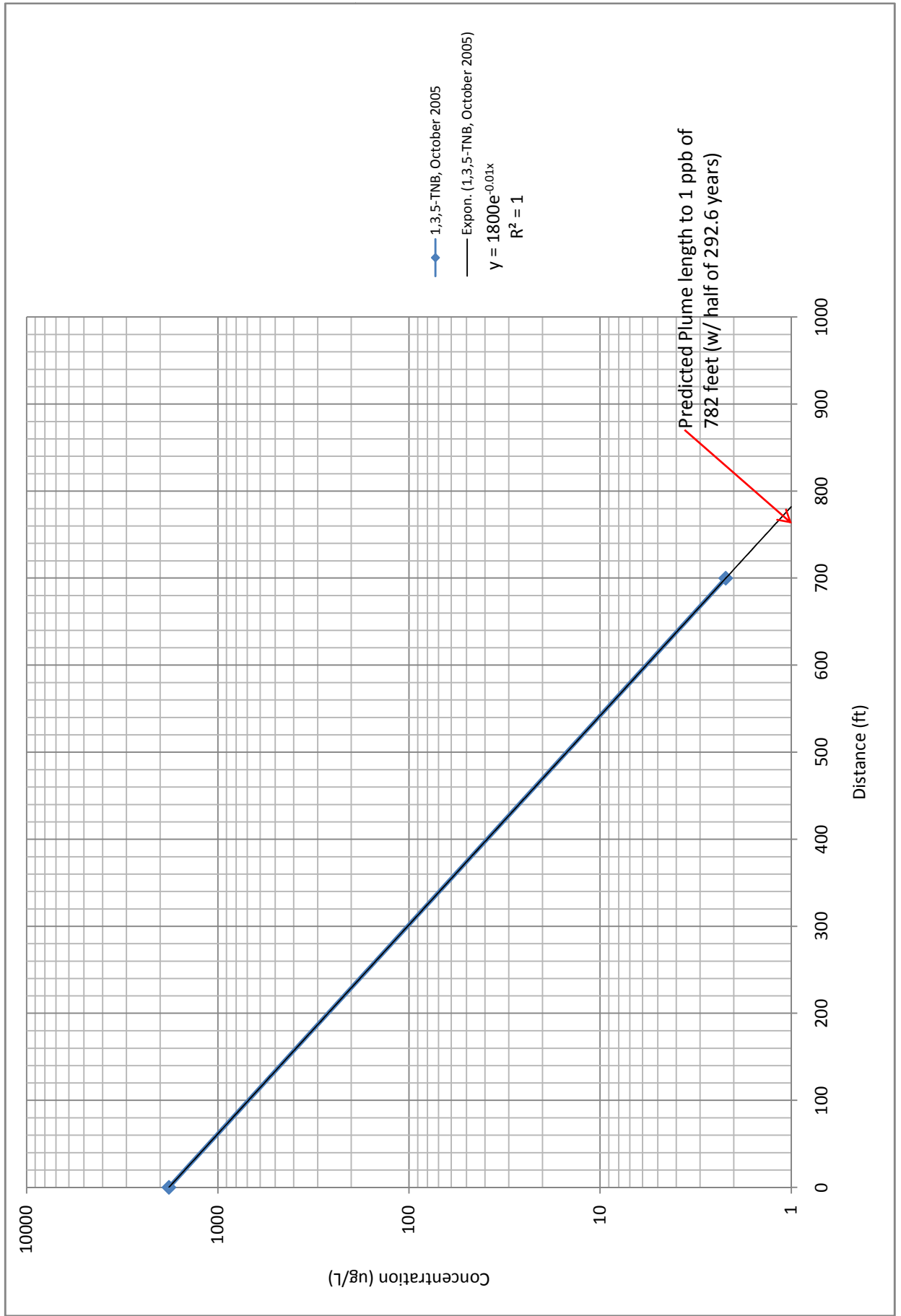




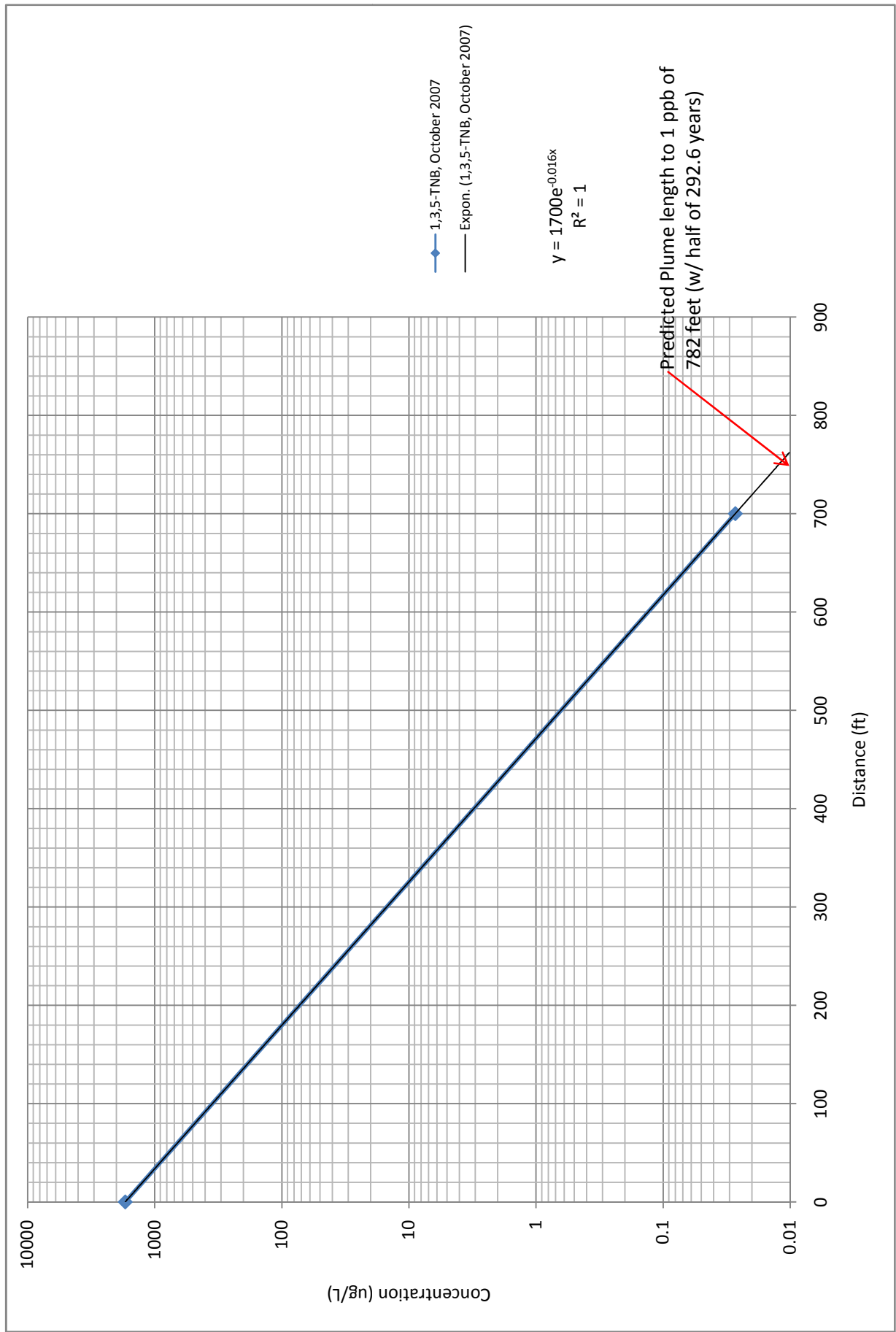




Site L1  
Extrapolated Regression Line-1,3,5-TNB October 2005 Data  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



Site L1  
Extrapolated Regression Line-1,3,5-TNB October 2007 Data  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

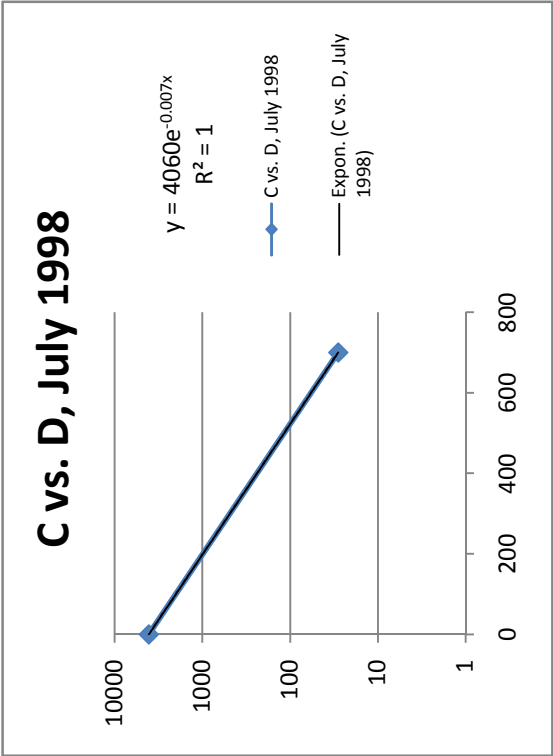
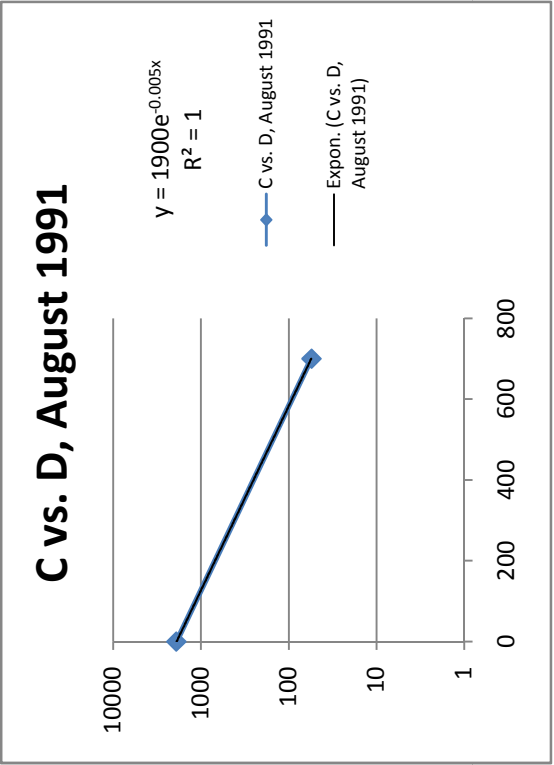
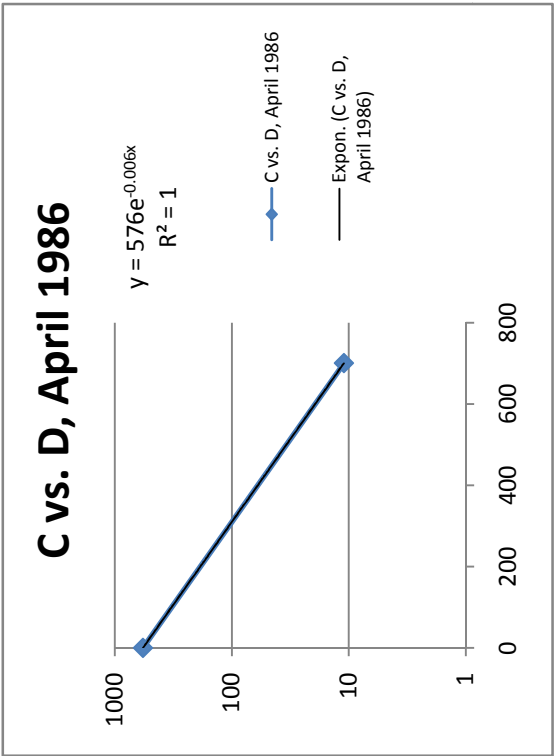


Site L1  
Bulk Decay Rate Constant Estimation (2,4,6-TNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

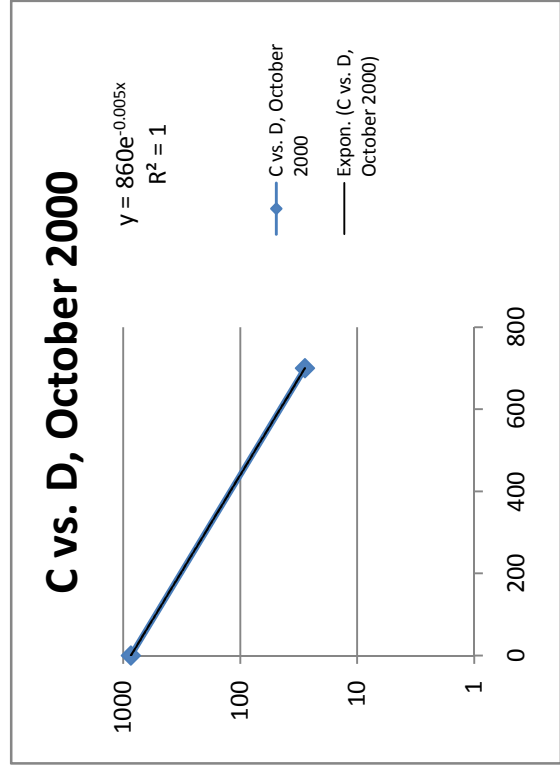
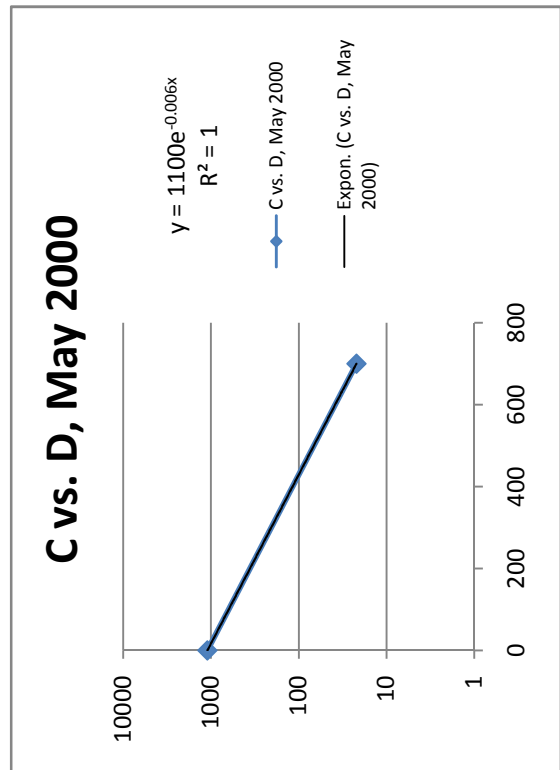
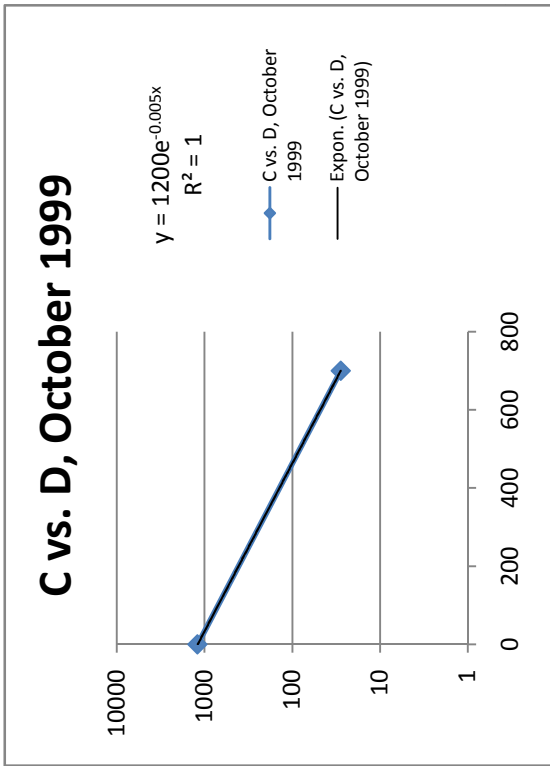
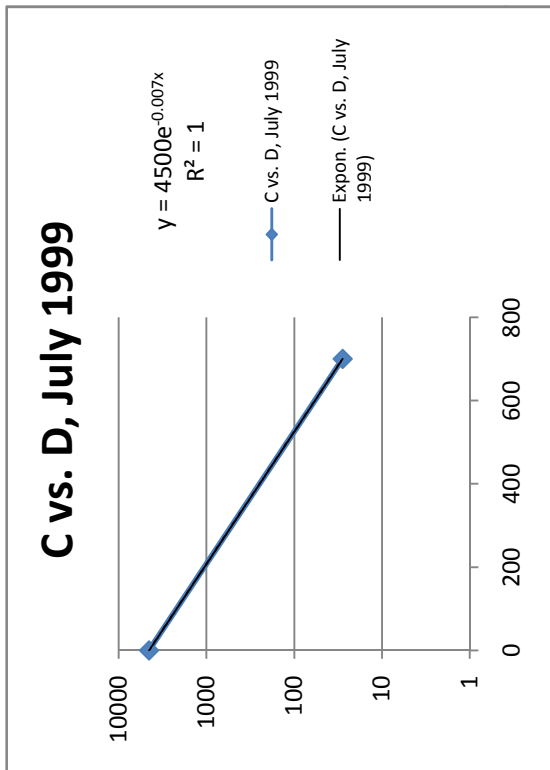
Date	Station	2,4,6-TNT (ug/L)	Station	2,4,6-TNT (ug/L)	Degradation Rate Constant (per foot)	Hydraulic Gradient (i)	Seepage Velocity (ft/year)	Bulk Attenuation Rate (per year)	Half Life (years)
Apr-86	MW131	576	MW173	11	0.006				
Aug-91	MW131	1900	MW173	55	0.005				
Jul-98	MW131	4060	MW173	28.3	0.007				
Jul-99	MW131	4500	MW173	28	0.007	0.0071	2.2	1.53E-02	45.3
Oct-99	MW131	1200	MW173	28	0.005	0.0012	0.4	1.80E-03	385.4
May-00	MW131	1100	MW173	22	0.006	0.0029	0.9	5.42E-03	127.8
Oct-00	MW131	860	MW173	28	0.005	0.0024	0.7	3.73E-03	185.9
May-01	MW131	3000	MW173	24	0.007	0.0055	1.7	1.19E-02	58.3
Oct-01	MW131	1000	MW173	24	0.005	0.0025	0.8	3.84E-03	180.6
May-02	MW131	4100	MW173	23	0.007	0.014	4.3	2.99E-02	23.2
Oct-02	MW131	1200	MW173	24	0.006	0.0007	0.2	1.37E-03	506.4
May-03	MW131	1400	MW173	16	0.006	0.0013	0.4	2.34E-03	295.9
Oct-03	MW131	840	MW173	23	0.005	0.0025	0.8	3.77E-03	183.7
May-04	MW131	8300	MW173	28	0.008				
Oct-04	MW131	980	MW173	26	0.005				
Jul-05	MW131	890	MW173	21	0.005	0.0027	0.8	4.08E-03	169.9
Oct-05	MW131	1300	MW173	18	0.006	0.0008	0.2	1.42E-03	487.7
May-06	MW131	4400	MW173	15	0.008	0.0054	1.7	1.33E-02	52.0
Oct-06	MW131	150	MW173	9.6	0.004	0.0046	1.4	5.70E-03	121.5
May-07	MW131	9900	MW173	33	0.008	0.0097	3.0	2.38E-02	29.1
Oct-07	MW131	1100	MW173	7.2	0.007	0.0064	2.0	1.37E-02	50.7
May-08	MW131	4900	MW173	14	0.008				
					0.006	0.0044	1.3	8.26E-03	83.9

Average hydraulic conductivity (cm/s) = 1.00E-04  
 Effective Porosity = 33.7%  
 Retardation Factor = 1  
 Distance from MW131 to MW173 is approximately 700 feet

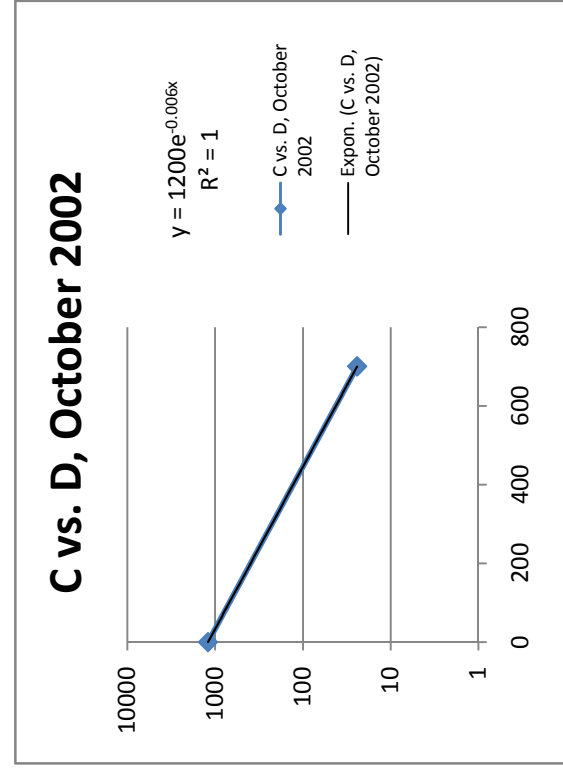
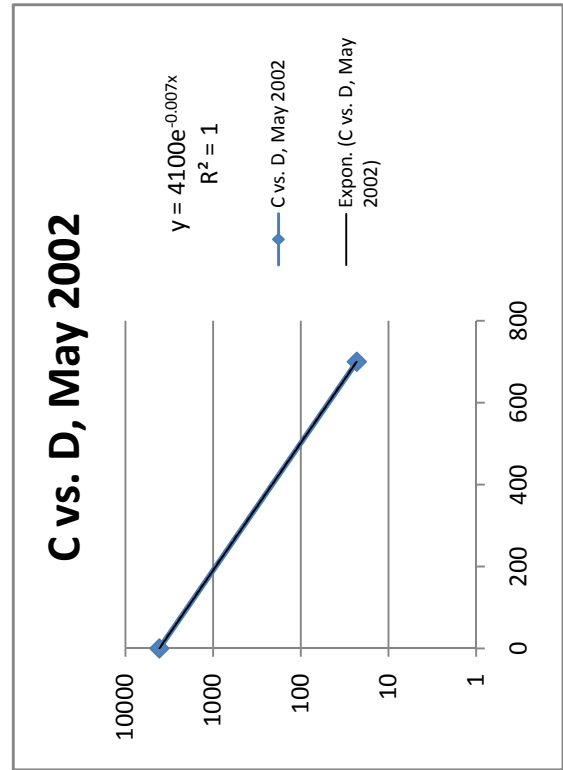
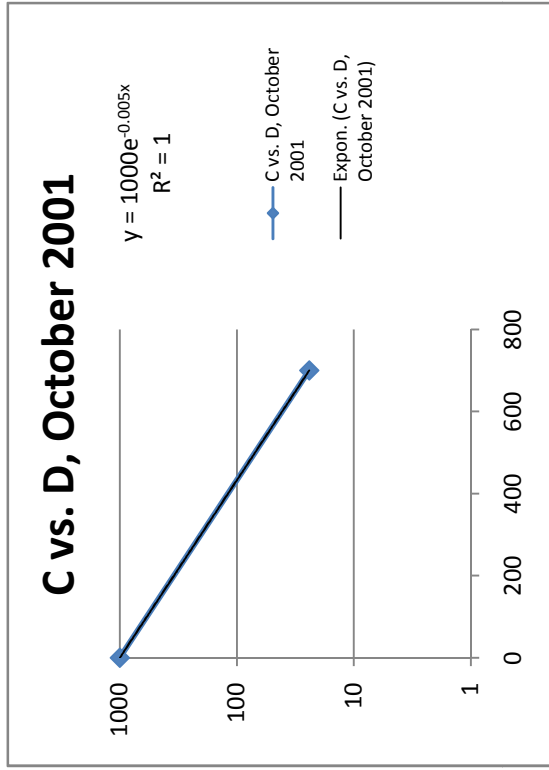
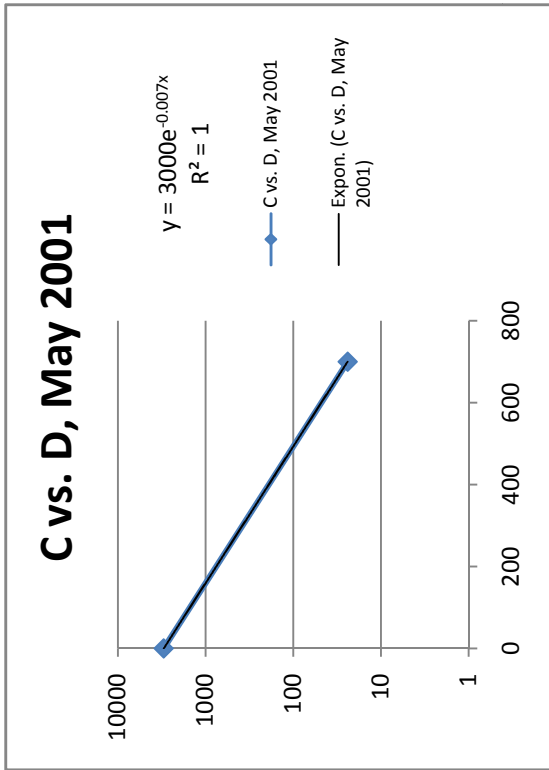
Site L1  
Bulk Decay Rate Constant Estimation (2,4,6-TNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



Site L1  
Bulk Decay Rate Constant Estimation (2,4,6-TNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

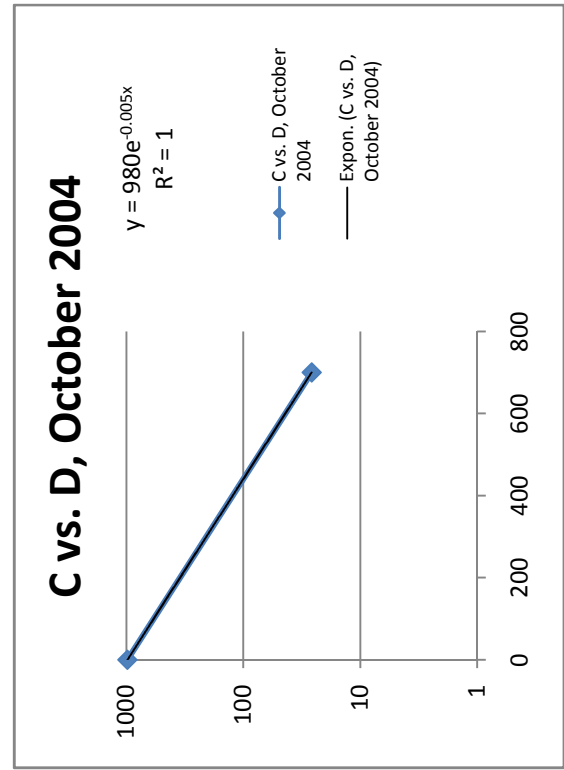
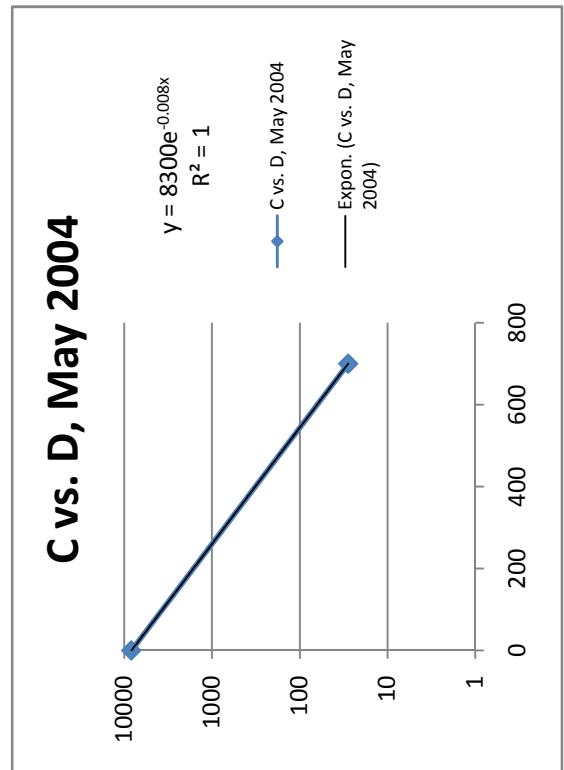
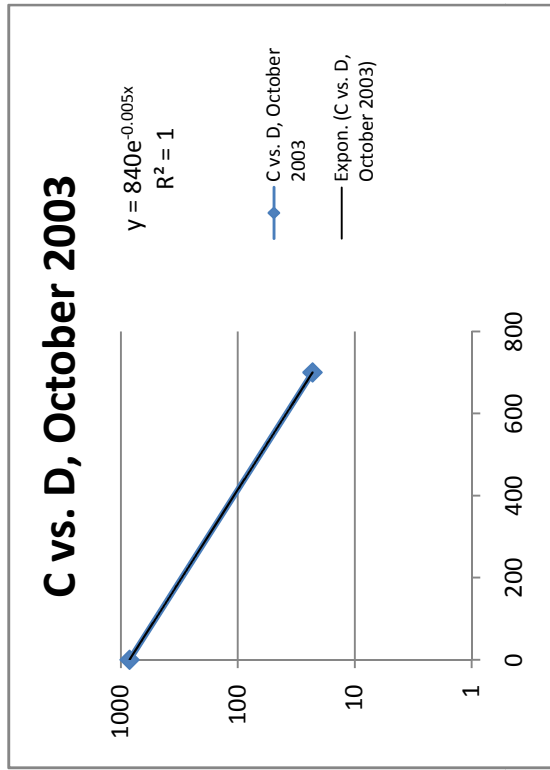
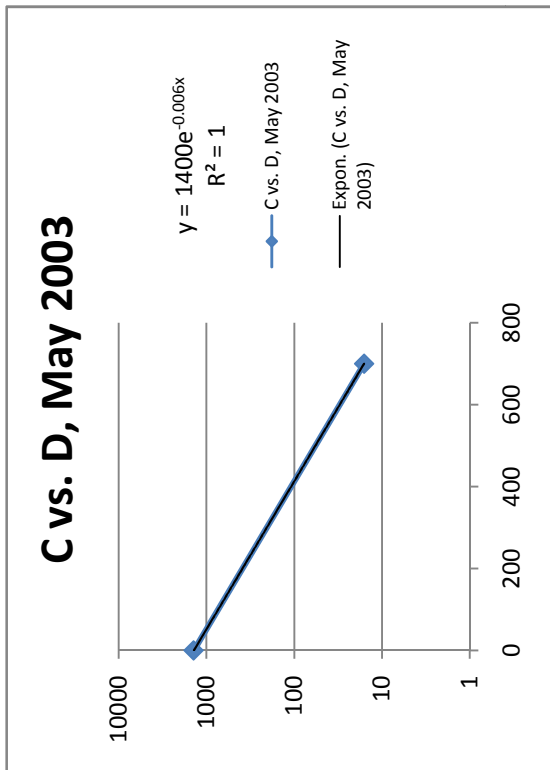


Site L1  
Bulk Decay Rate Constant Estimation (2,4,6-TNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

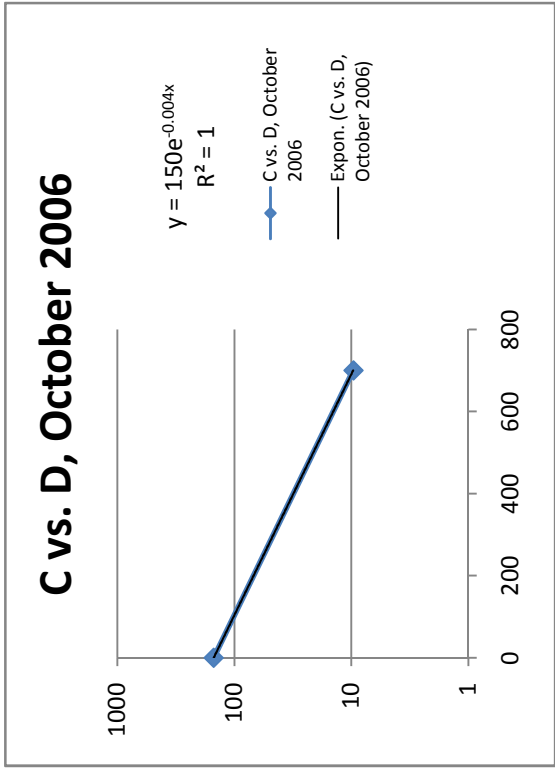
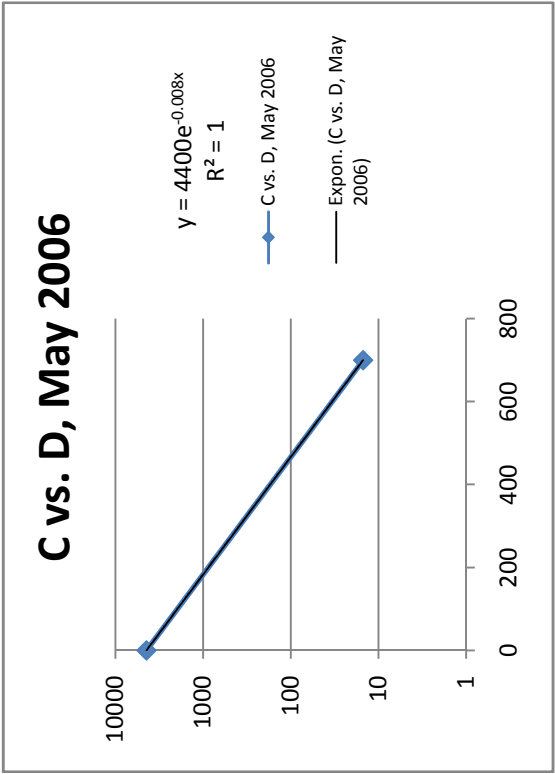
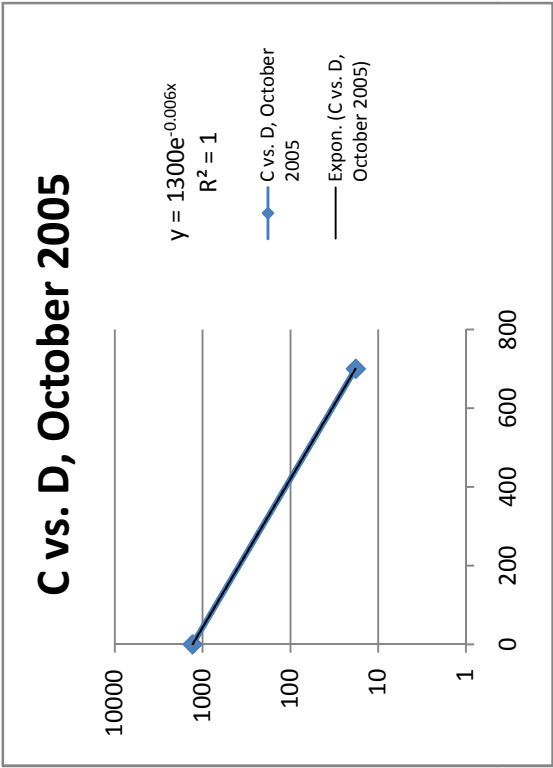
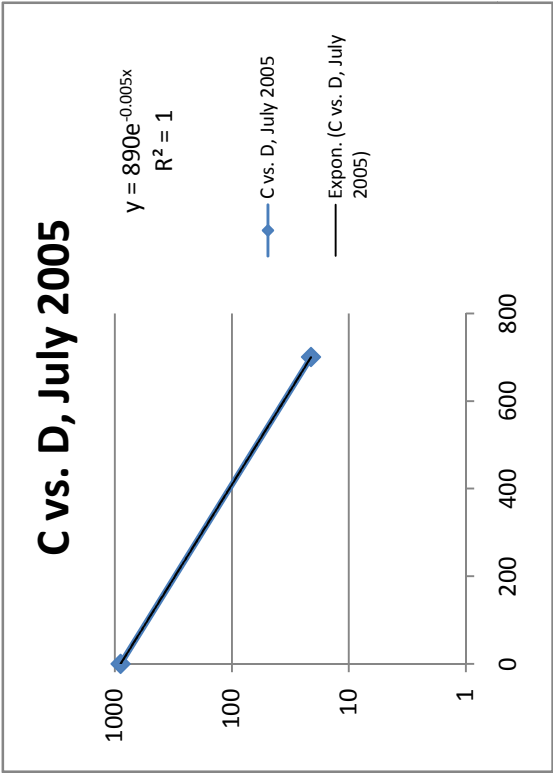




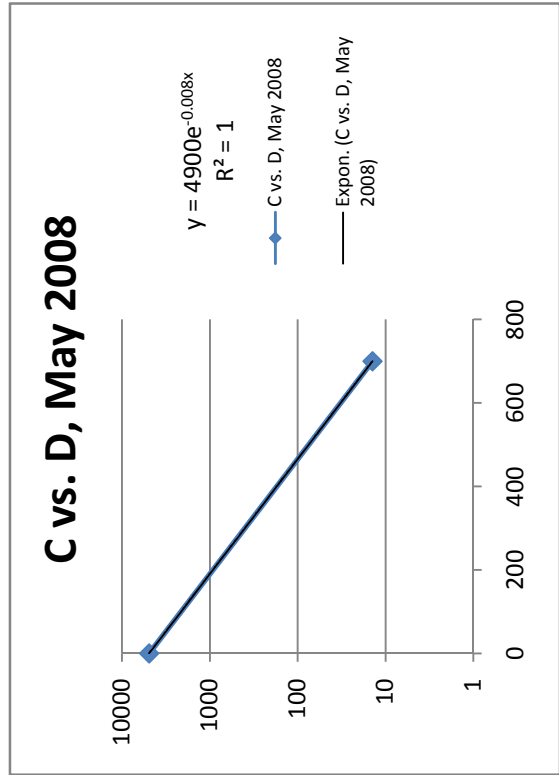
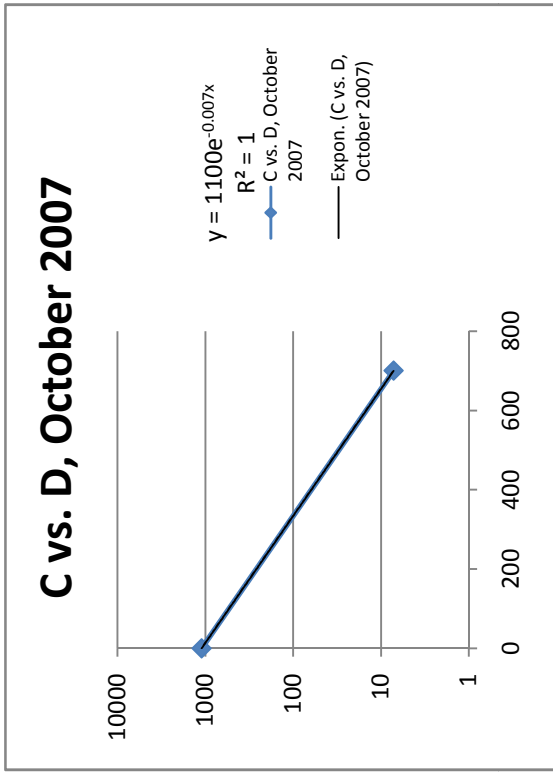
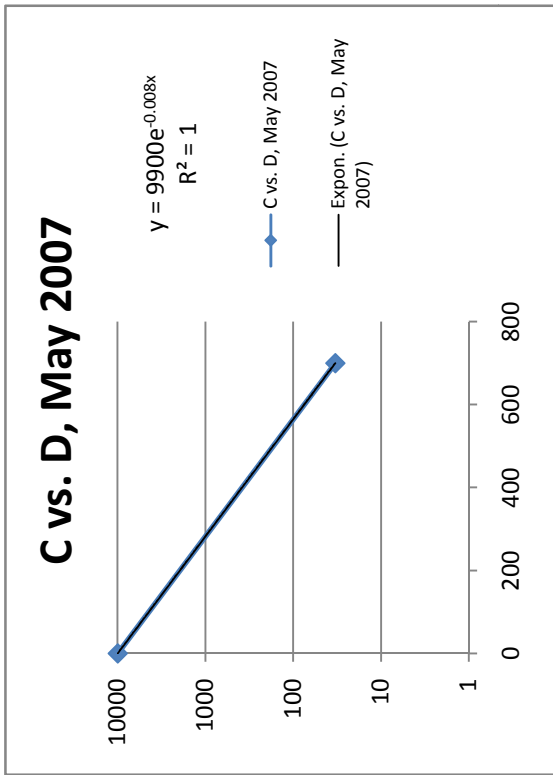
Site L1  
Bulk Decay Rate Constant Estimation (2,4,6-TNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



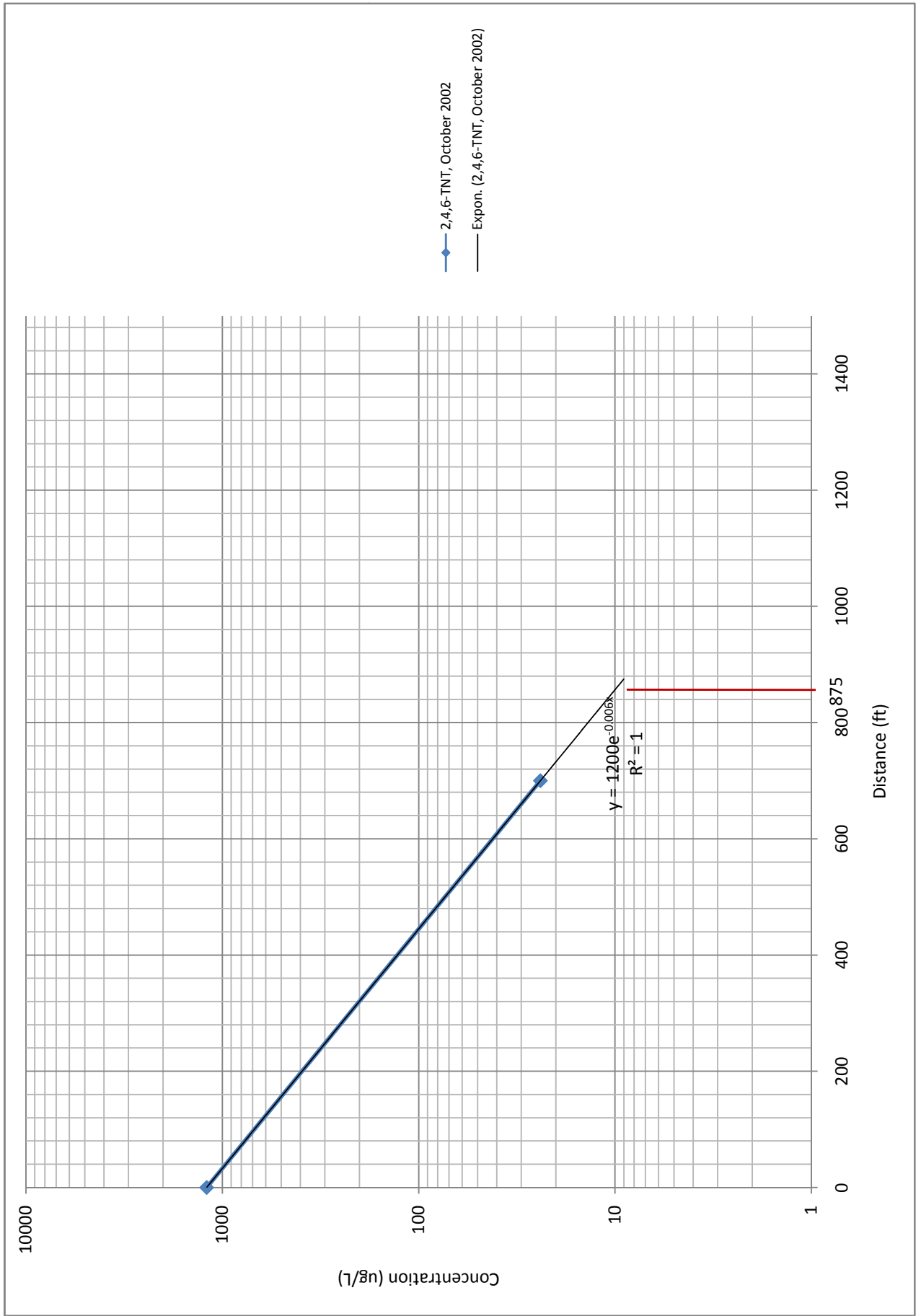
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Bulk Decay Rate Constant Estimation (2,4,6-TNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



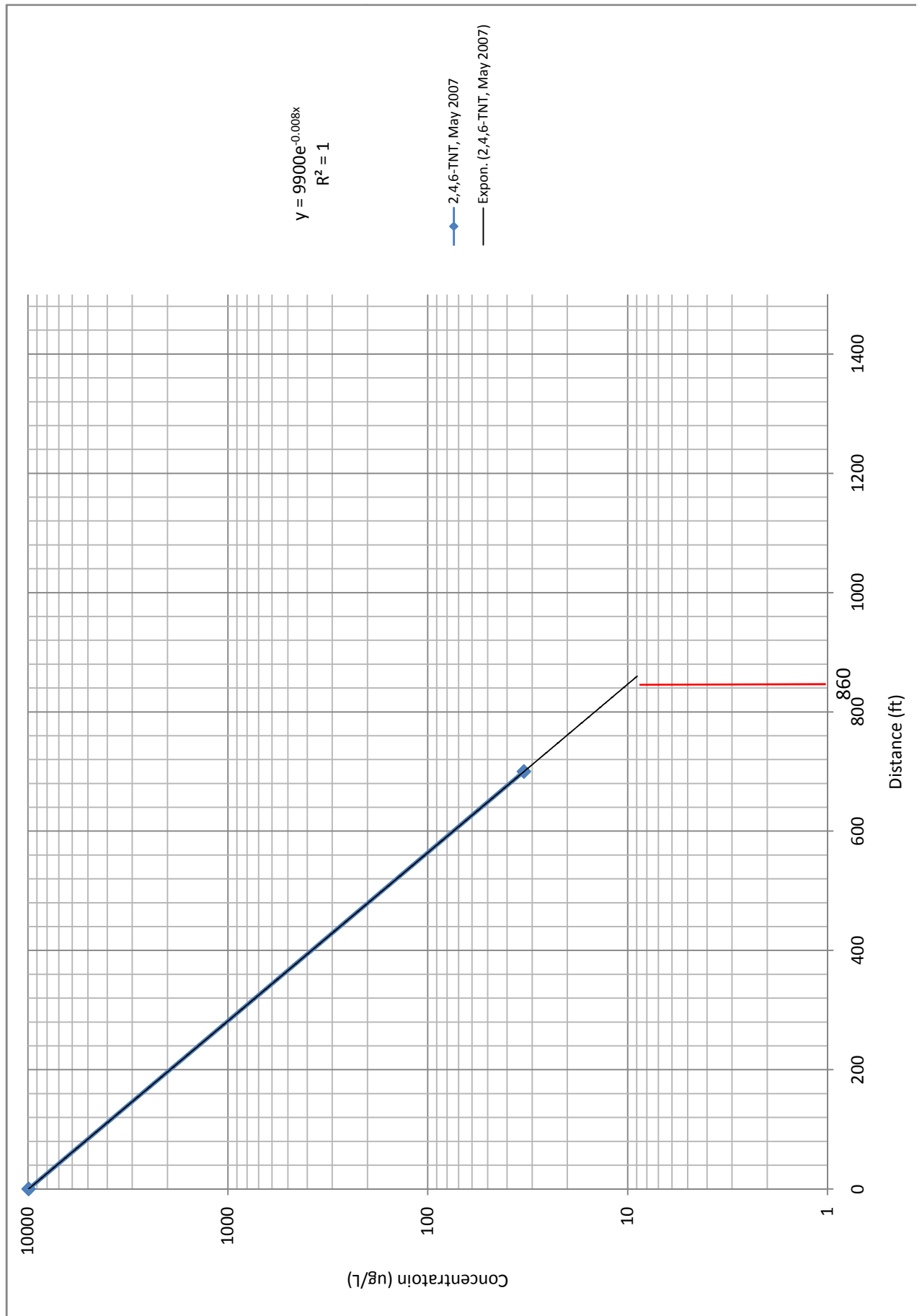
Site L1  
Bulk Decay Rate Constant Estimation (2,4,6-TNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



Site L1  
Extrapolated Regression Line-2,4,6-TNT October 2002 Data  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

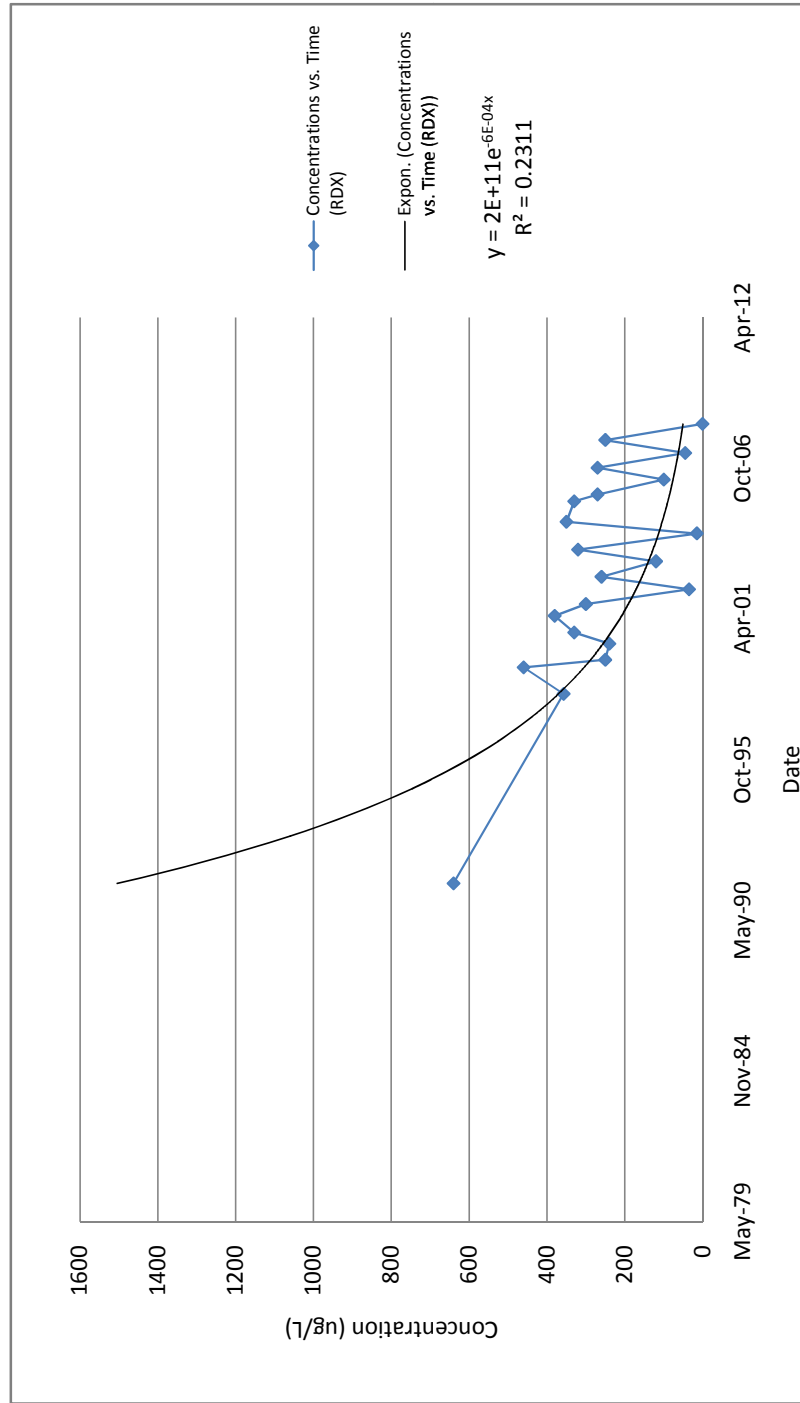


Site L1  
Extrapolated Regression Line-2,4,6-TNT May 2007 Data  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



Site L2 - MW404  
First Order Decay Rate Constant Estimation  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

Date	RDX (ug/L)
9/6/1991	640
7/27/1998	357
7/14/1999	460
10/22/1999	250
5/22/2000	240
10/19/2000	330
5/29/2001	380
10/30/2001	300
5/14/2002	35
10/29/2002	260
5/21/2003	120
10/24/2003	320
5/25/2004	15
10/26/2004	350
7/26/2005	330
10/25/2005	270
5/9/2006	100
10/13/2006	270
4/27/2007	45
10/17/2007	250
5/19/2008	0.39



Using equation:  $C(t) = C_i e^{-kt}$

Where:

$C(t)$  is the concentration of the contaminant as a function of time at a monitoring location

$C_i$  is the contaminant concentration at the beginning of the analysis

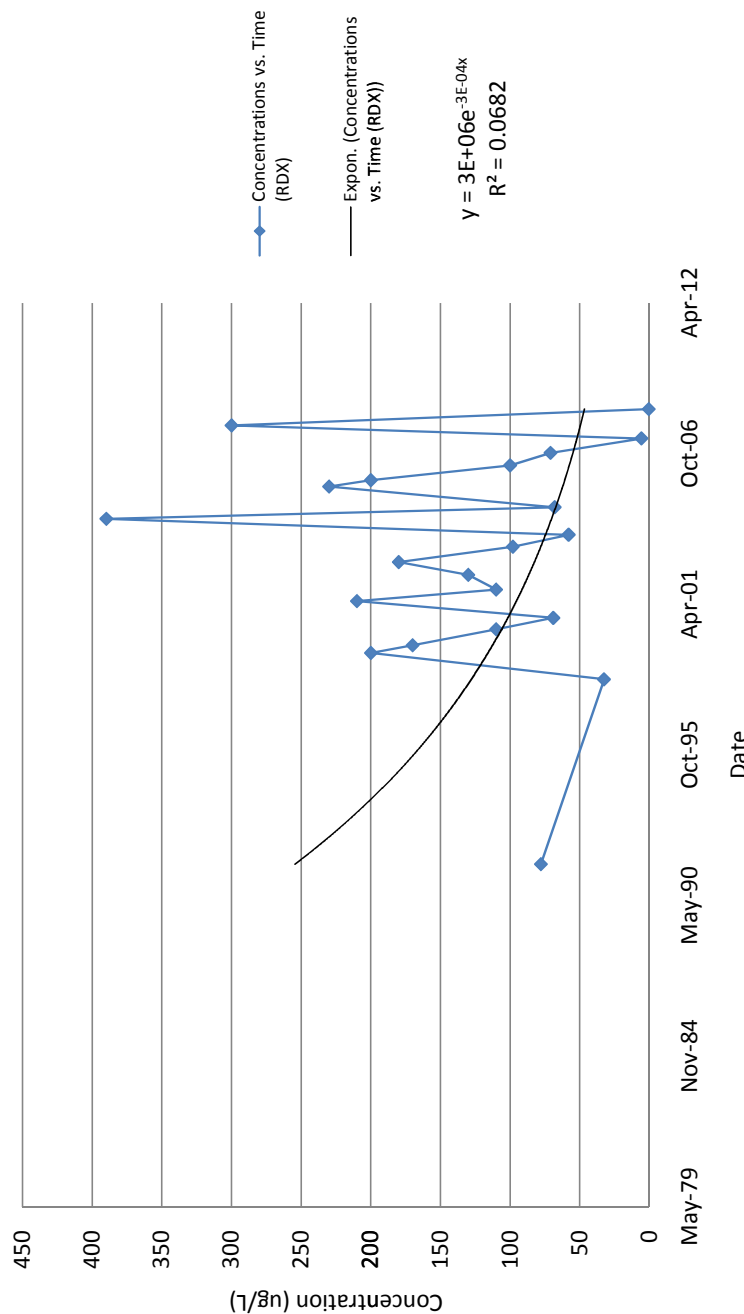
$t$  is the elapsed time

A linear regression of  $\ln(C)$  versus  $t$  gives a slope of  $-k$  and an intercept of  $C_i$  (plotted on chart)

**First Order Decay Rate Constant ( $k$ ) =  $6.0 \times 10^{-4} \text{ day}^{-1}$  or  $2.19 \times 10^{-1} \text{ year}^{-1}$**

Site L3 - MW412  
First Order Decay Rate Constant Estimation  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

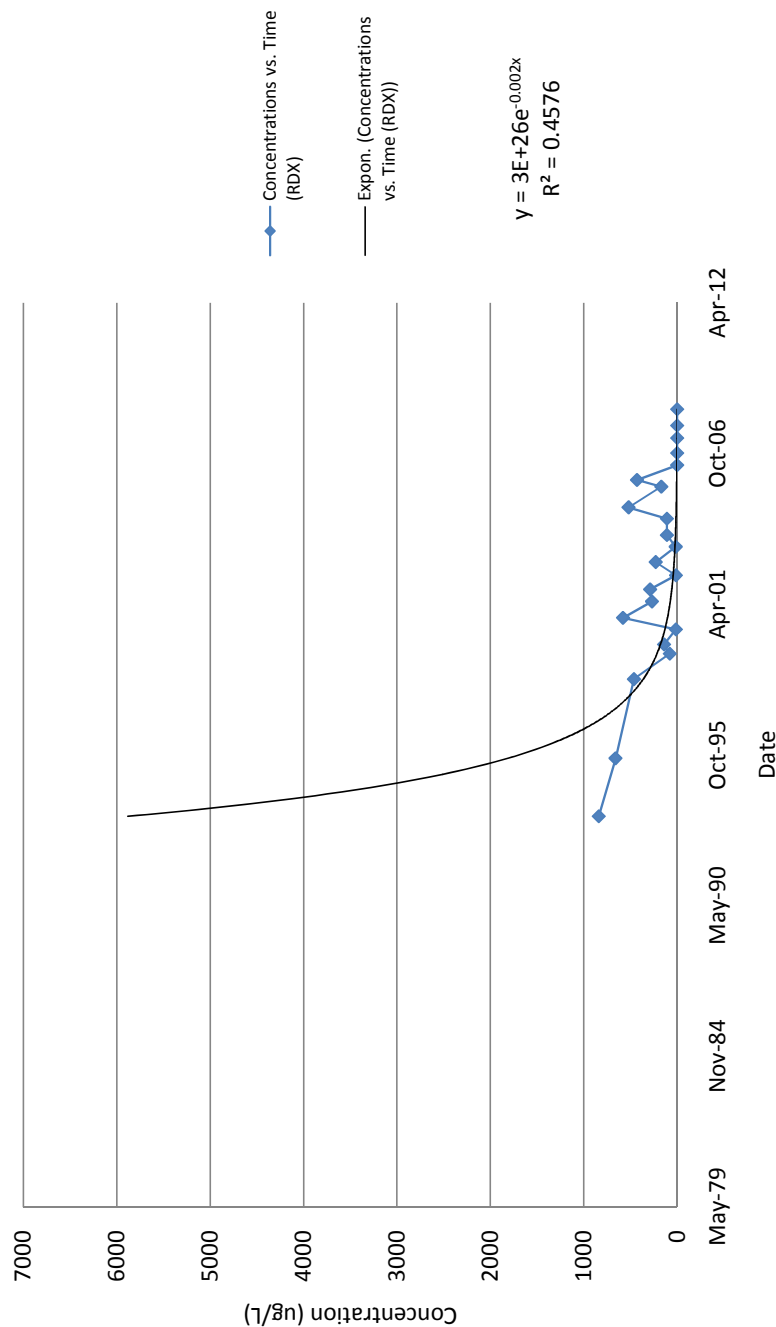
Date	RDX (ug/L)
11/8/1991	77.9
7/27/1998	32.6
7/12/1999	200
10/21/1999	170
5/22/2000	110
10/19/2000	69
5/30/2001	210
10/30/2001	110
5/13/2002	130
10/29/2002	180
5/21/2003	98
10/28/2003	58
5/26/2004	390
10/27/2004	68
7/27/2005	230
10/21/2005	200
5/5/2006	100
10/18/2006	71
4/27/2007	5.7
10/17/2007	300
5/21/2008	0.39



Using equation:  $C(t) = C_0 e^{-kt}$   
Where:  
 $C(t)$  is the concentration of the contaminant as a function of time at a monitoring location  
 $C_0$  is the contaminant concentration at the beginning of the analysis  
 $t$  is the elapsed time  
A linear regression of  $\ln(C)$  versus  $t$  gives a slope of  $-k$  and an intercept of  $C_0$  (plotted on chart)  
**First Order Decay Rate Constant ( $k$ ) =  $3.0 \times 10^{-4} \text{ day}^{-1}$  or  $1.1 \times 10^{-1} \text{ year}^{-1}$**

Site L14 - MW508  
First Order Decay Rate Constant Estimation  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

Date	RDX (ug/L)
8/2/1993	840
9/12/1995	660
7/28/1998	462
7/1/1999	79
11/1/1999	140
5/19/2000	14
10/20/2000	580
5/25/2001	270
10/31/2001	290
5/6/2002	13
10/30/2002	230
5/21/2003	16
10/22/2003	110
5/27/2004	110
10/25/2004	520
7/27/2005	170
10/24/2005	430
5/8/2006	1.4
10/16/2006	0.091
5/2/2007	0.08
10/15/2007	0.051
5/20/2008	0.39



Using equation:  $C(t) = C_i e^{(kt)}$

Where:

$C(t)$  is the concentration of the contaminant as a function of time at a monitoring location

$C_i$  is the contaminant concentration at the beginning of the analysis

$t$  is the elapsed time

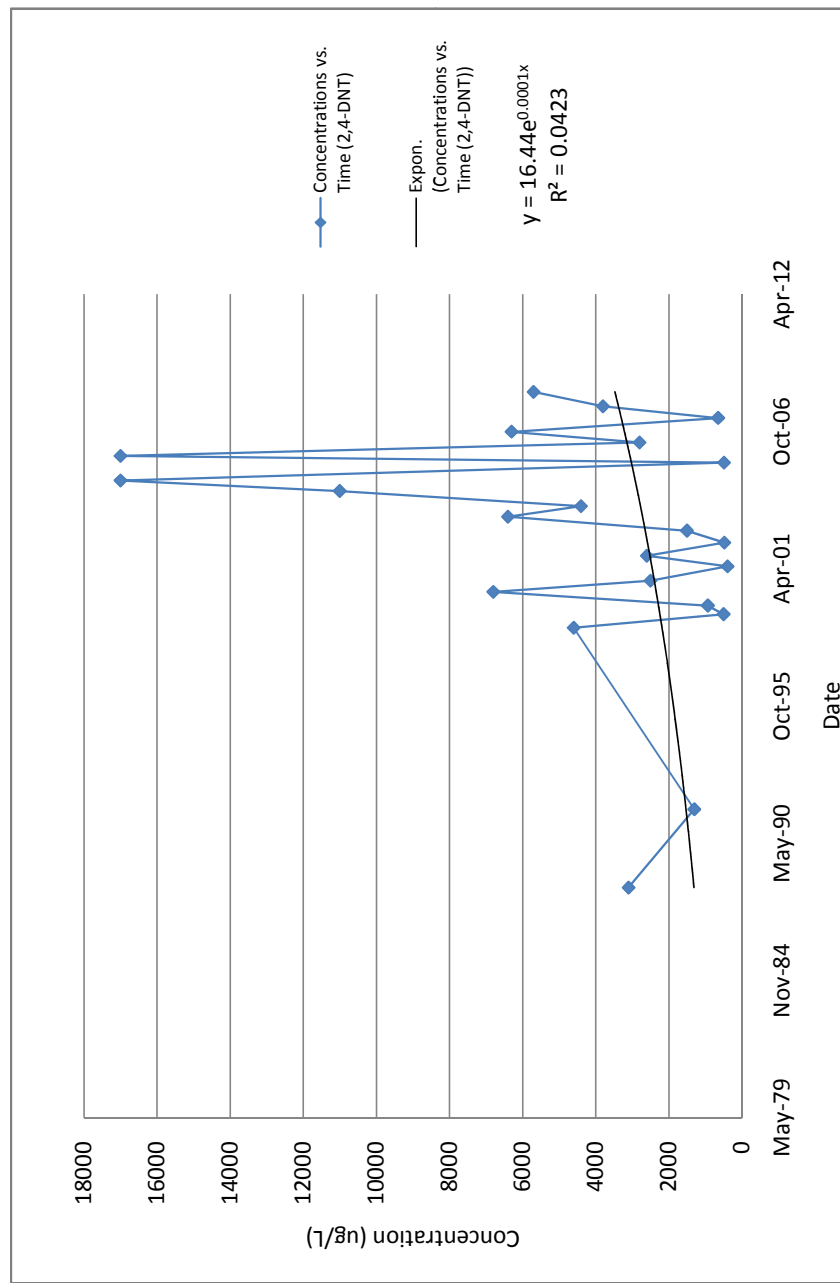
A linear regression of  $\ln(C)$  versus  $t$  gives a slope of  $-k$  and an intercept of  $C_i$  (plotted on chart)

**First Order Decay Rate Constant ( $k$ ) =  $2.0 \times 10^{-3} \text{ day}^{-1}$  or  $7.3 \times 10^{-4} \text{ year}^{-1}$**



Site M6 - MW212 (2,4-DNT)  
First Order Decay Rate Constant Estimation  
Second Five-Year Review Report  
Joliet Army Ammunition

Date	2,4-DNT (ug/L)
7/25/1988	3100
9/10/1991	1300
12/8/1998	4600
6/25/1999	500
10/29/1999	930
5/16/2000	6800
10/24/2000	2500
5/21/2001	390
10/24/2001	2600
5/3/2002	480
10/25/2002	1500
5/15/2003	6400
10/17/2003	4400
5/25/2004	11000
10/25/2004	17000
7/13/2005	490
10/18/2005	17000
5/1/2006	2800
10/6/2006	6300
4/24/2007	650
10/10/2007	3800
5/9/2008	5700



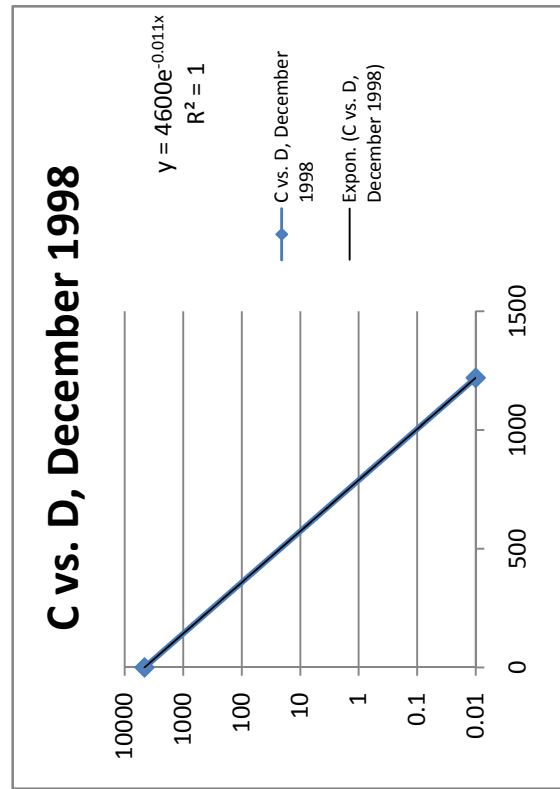
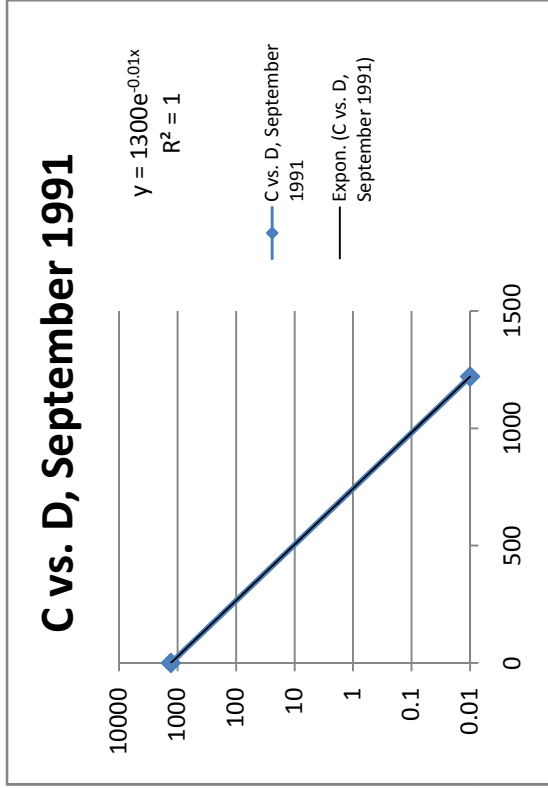
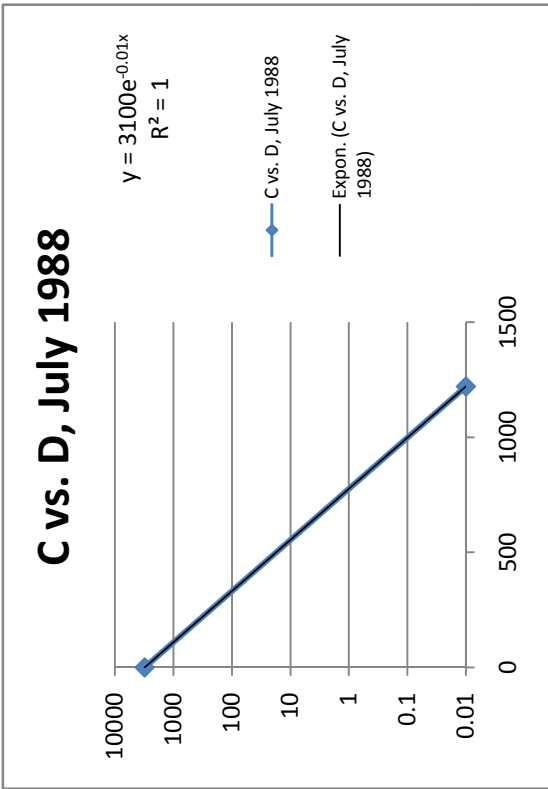
Using equation:  $C(t) = C_i e^{-kt}$   
Where:  
 $C(t)$  is the concentration of the contaminant as a function of time at a monitoring location  
 $C_i$  is the contaminant concentration at the beginning of the analysis  
 $t$  is the elapsed time  
A linear regression of  $\ln(C)$  versus  $t$  gives a slope of  $-k$  and an intercept of  $C_i$  (plotted on chart)  
**First Order Decay Rate Constant ( $k$ ) is negative, indicating an increasing trend.**

Site M6  
Bulk Decay Rate Constant Estimation (2,4-DNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

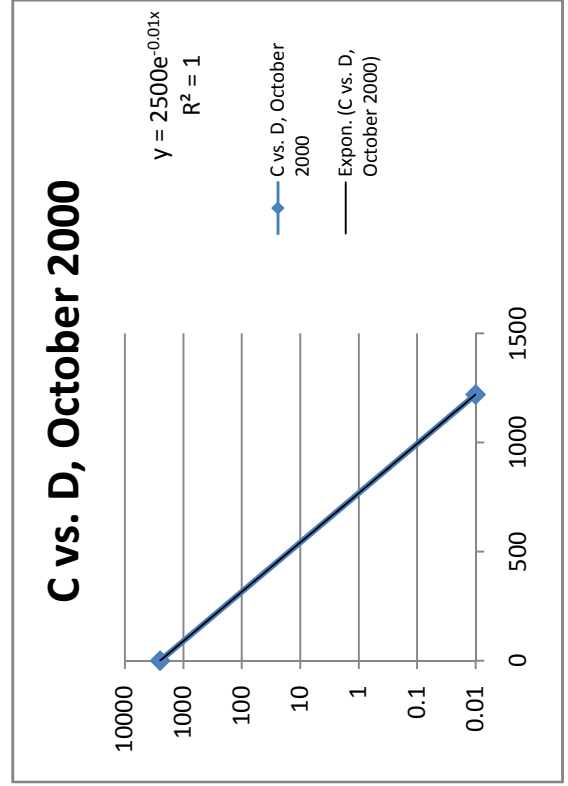
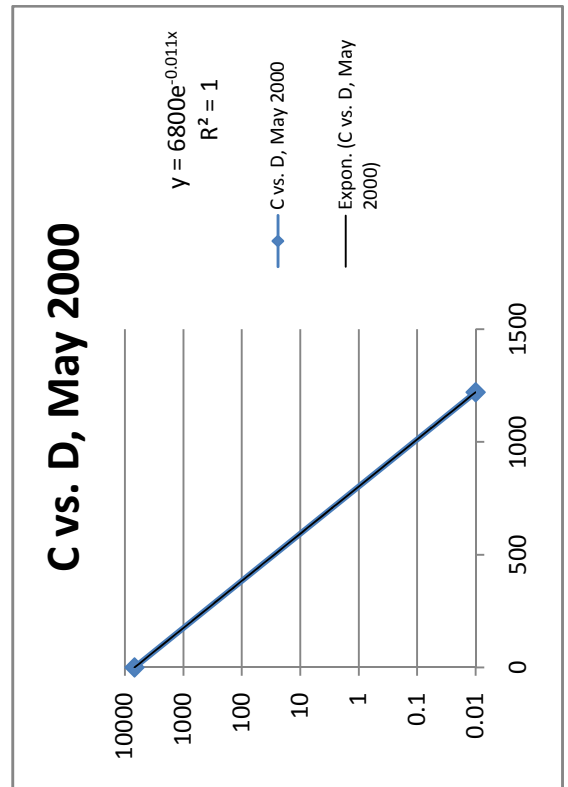
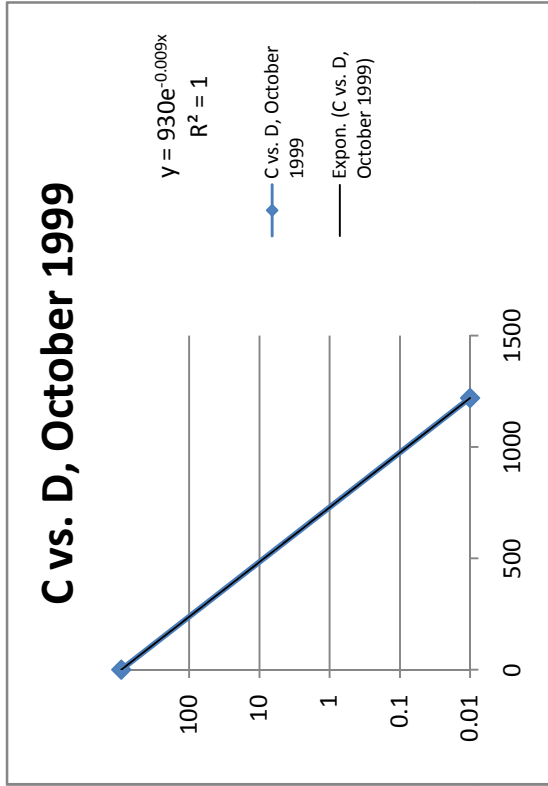
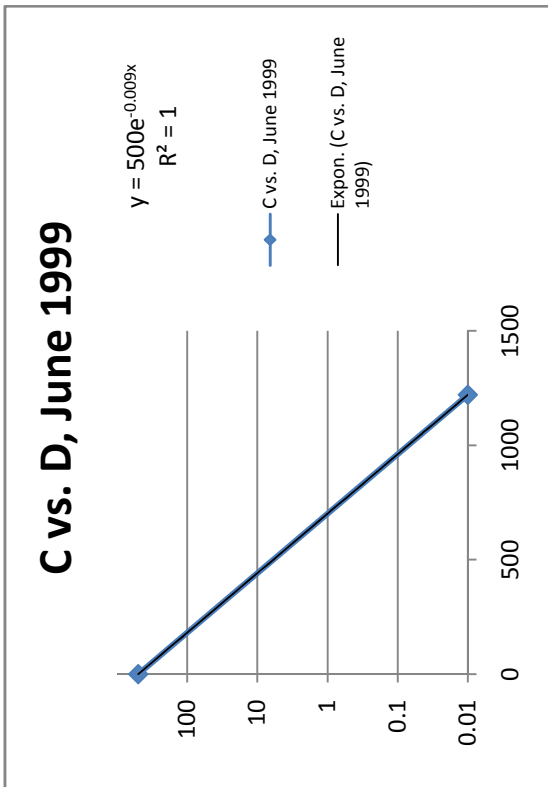
Date	Station	2,4-DNT (ug/L)	Station	2,4-DNT (ug/L)	Degradation Rate Constant (per foot)	Hydraulic Gradient (i)	Seepage Velocity (ft/year)	Bulk Attenuation Rate (per year)	Half Life (years)
7/25/1988	MW212	3100	MW123	0.01	0.01				
9/10/1991	MW212	1300	MW123	0.01	0.01				
12/8/1998	MW212	4600	MW123	0.01	0.011				
6/25/1999	MW212	500	MW123	0.01	0.009	0.016	41.4	3.73E-01	1.9
10/29/1999	MW212	930	MW123	0.01	0.009	0.017	45.2	4.06E-01	1.7
5/16/2000	MW212	6800	MW123	0.01	0.011	0.015	39.5	4.35E-01	1.6
10/24/2000	MW212	2500	MW123	0.01	0.01	0.015	39.8	3.98E-01	1.7
5/21/2001	MW212	390	MW123	0.01	0.009	0.024	62.2	5.60E-01	1.2
10/24/2001	MW212	2600	MW123	0.01	0.01	0.019	48.9	4.89E-01	1.4
5/3/2002	MW212	480	MW123	0.01	0.009	0.018	46.5	4.19E-01	1.7
10/25/2002	MW212	1500	MW123	0.01	0.01	0.019	50.1	5.01E-01	1.4
5/15/2003	MW212	6400	MW123	0.01	0.011	0.018	45.4	4.99E-01	1.4
10/17/2003	MW212	4400	MW123	0.01	0.011	0.018	47.6	5.24E-01	1.3
5/25/2004	MW212	11000	MW123	0.01	0.011				
10/25/2004	MW212	17000	MW123	0.01	0.012				
7/13/2005	MW212	490	MW123	0.01	0.009	0.019	48.4	4.36E-01	1.6
10/18/2005	MW212	17000	MW123	0.01	0.012	0.020	50.5	6.06E-01	1.1
5/1/2006	MW212	2800	MW123	0.01	0.01	0.018	47.1	4.71E-01	1.5
10/6/2006	MW212	6300	MW123	0.01	0.011	0.018	47.2	5.20E-01	1.3
4/24/2007	MW212	650	MW123	0.01	0.009	0.018	47.5	4.28E-01	1.6
10/10/2007	MW212	3800	MW123	0.01	0.011	0.019	49.8	5.48E-01	1.3
5/9/2008	MW212	5700	MW123	0.01	0.011				
					0.010	0.0183	47.3	4.65E-01	1.5

Average hydraulic conductivity (cm/s) = 8.90E-04  
Effective Porosity = 35.6%  
Retardation Factor = 1  
Distance from MW212 to MW123 is approximately 1,220 feet

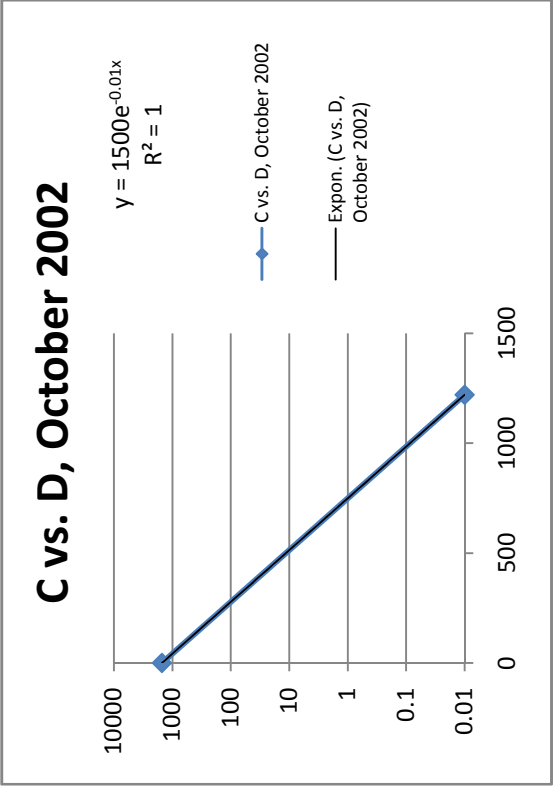
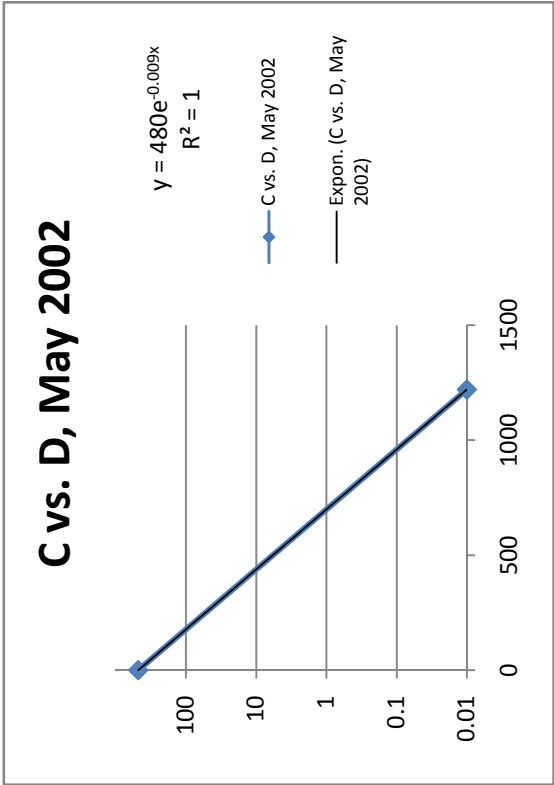
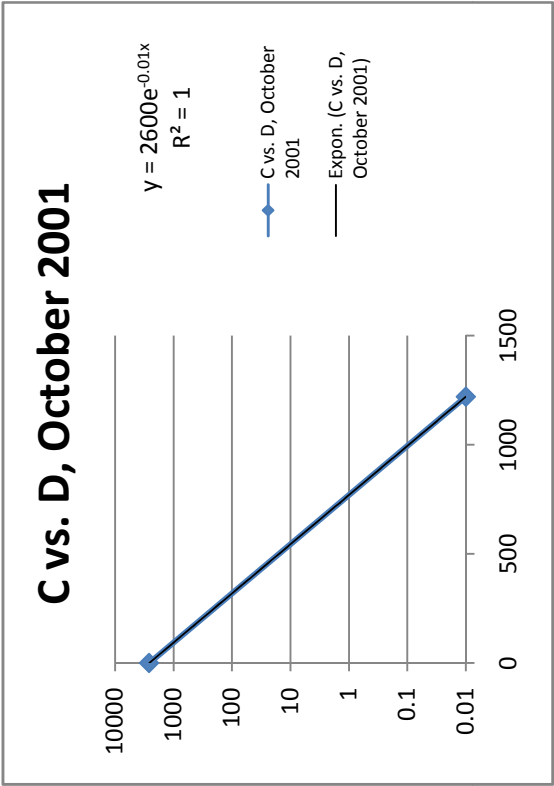
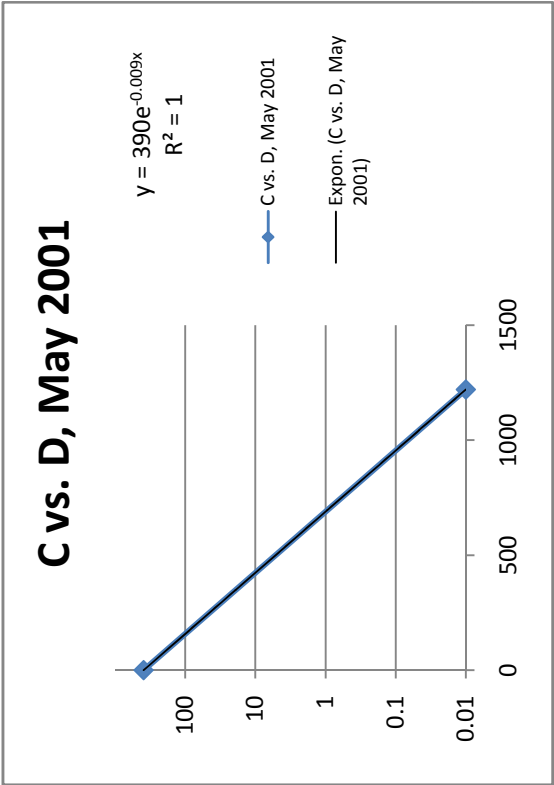
Site M6  
Bulk Decay Rate Constant Estimation (2,4-DNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



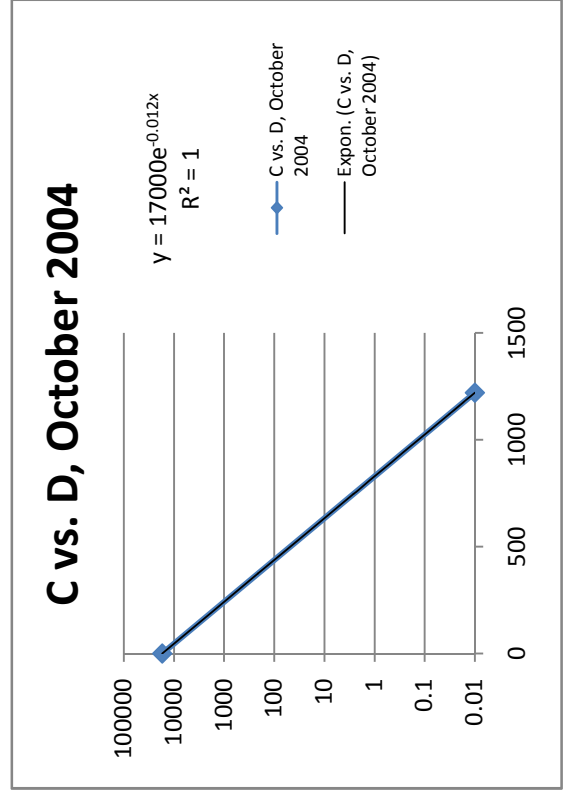
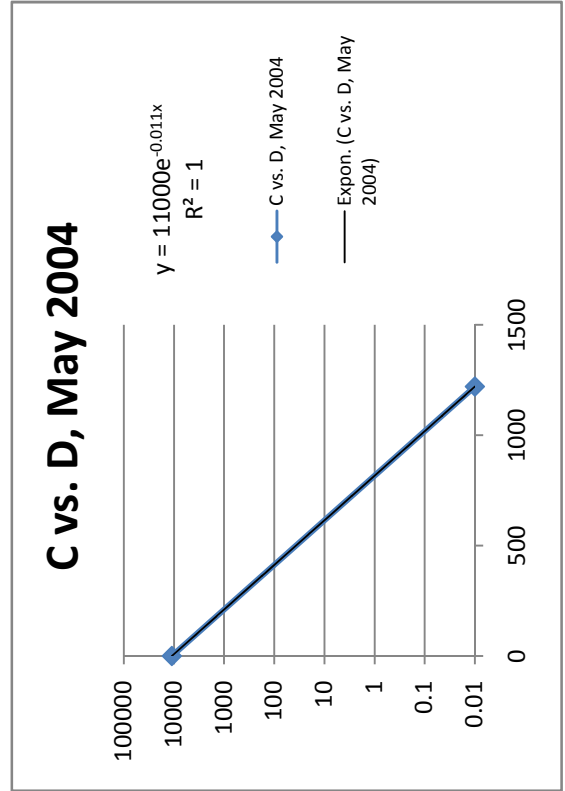
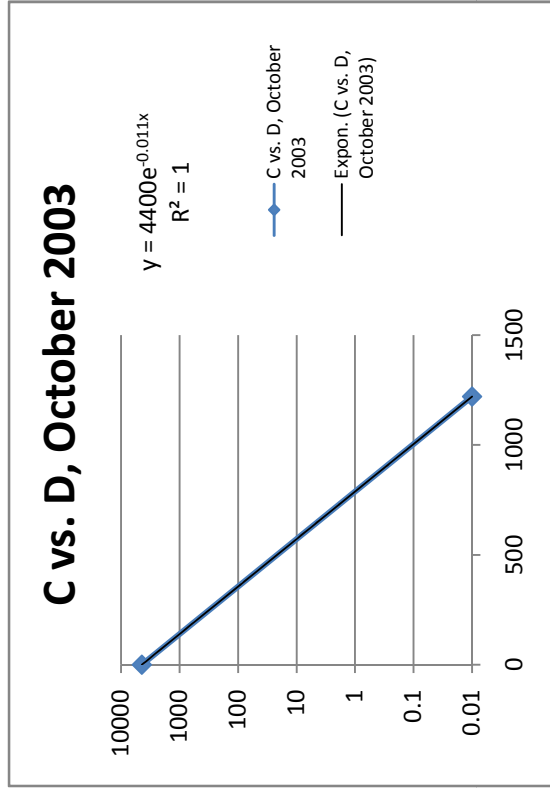
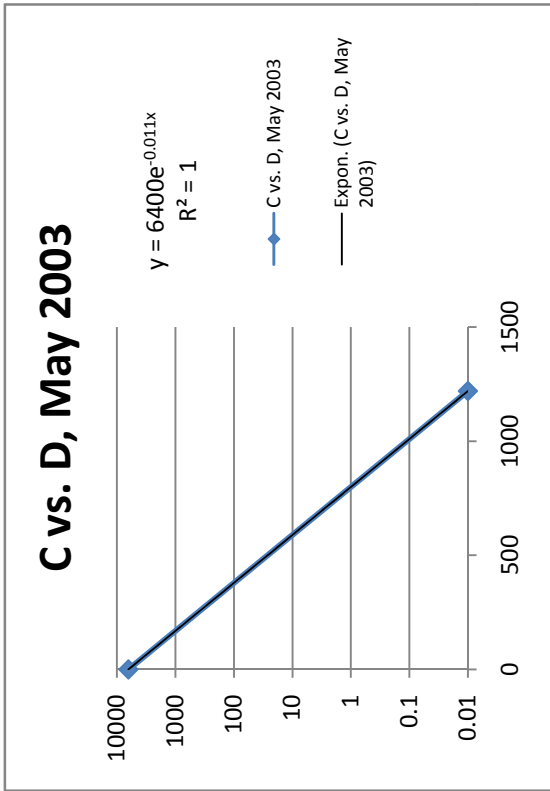
Site M6  
Bulk Decay Rate Constant Estimation (2,4-DNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



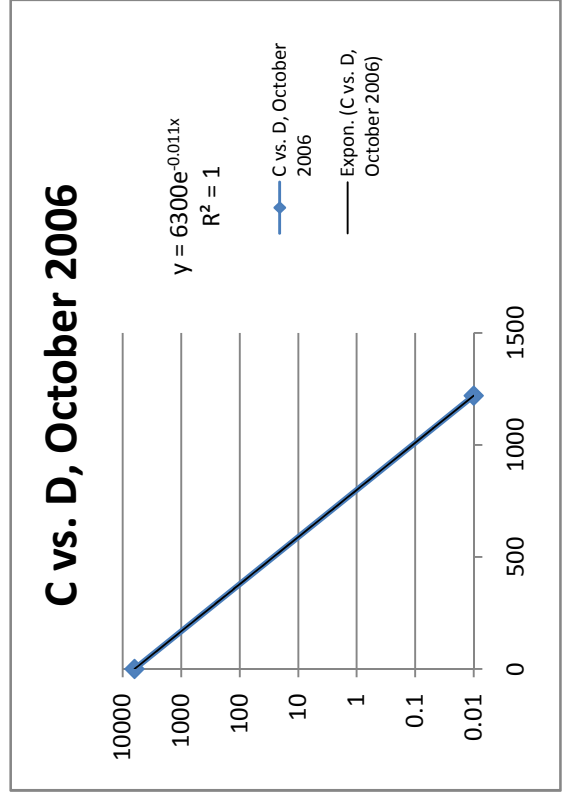
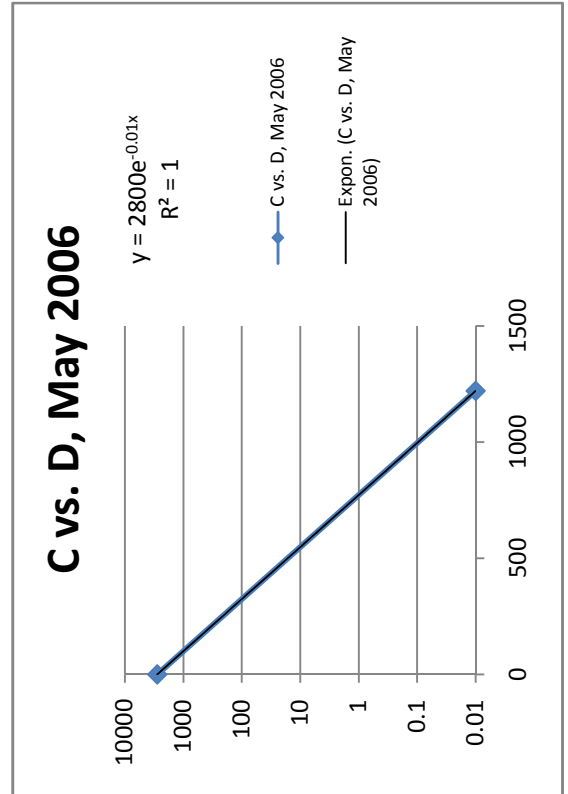
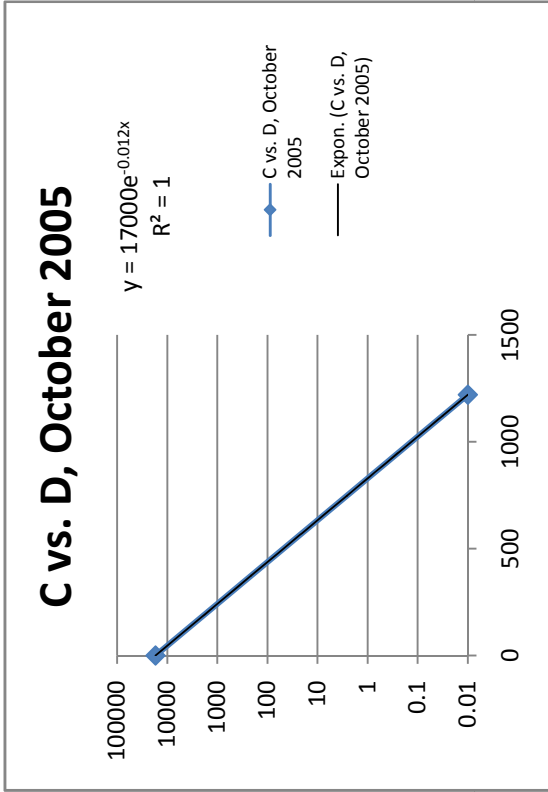
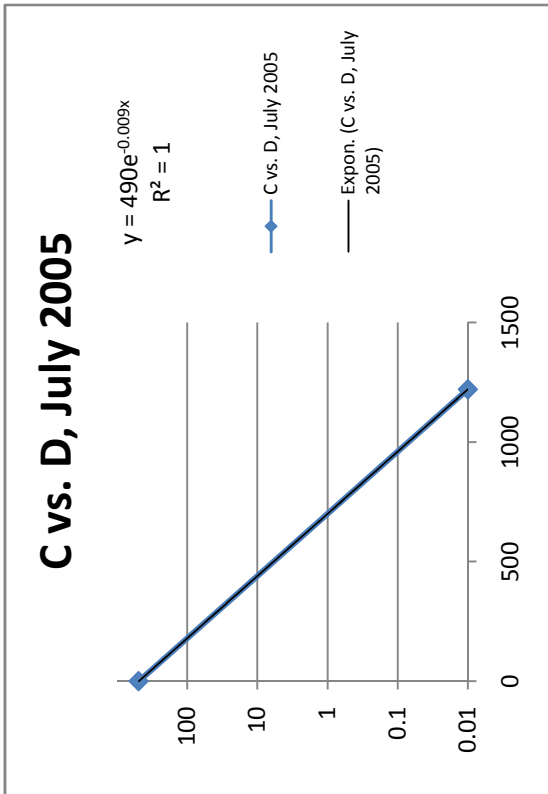
Site M6  
Bulk Decay Rate Constant Estimation (2,4-DNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



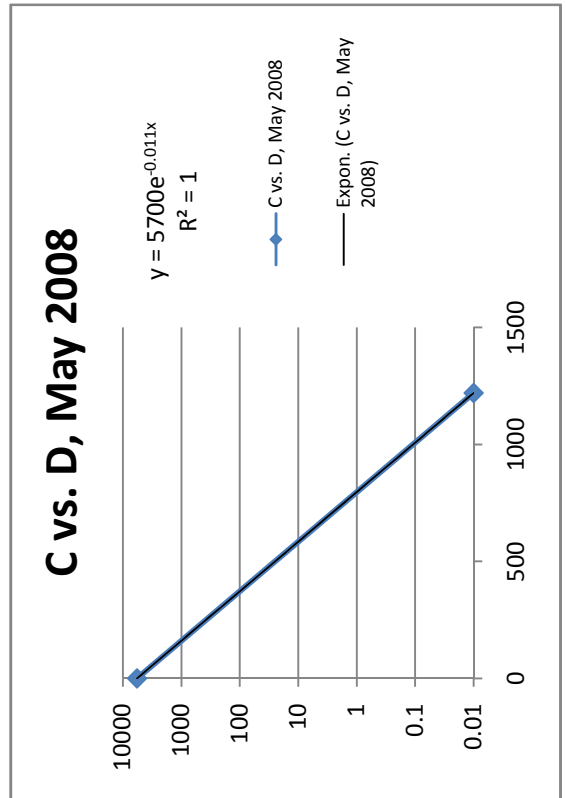
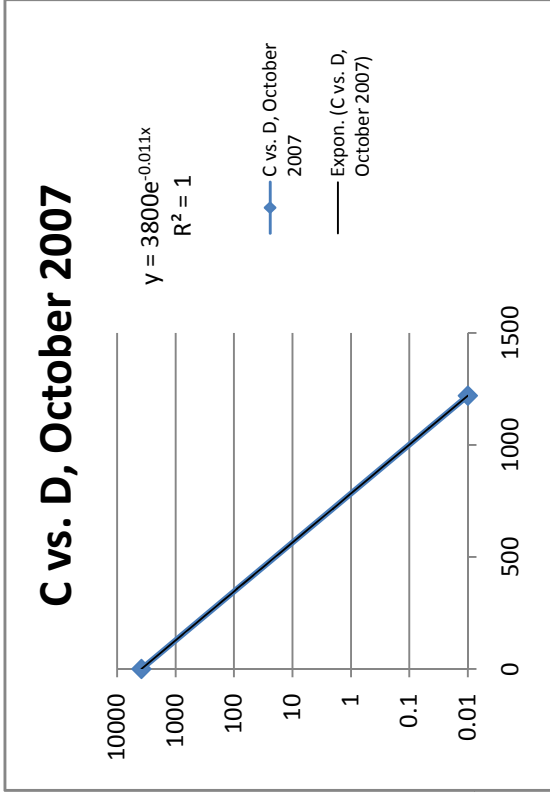
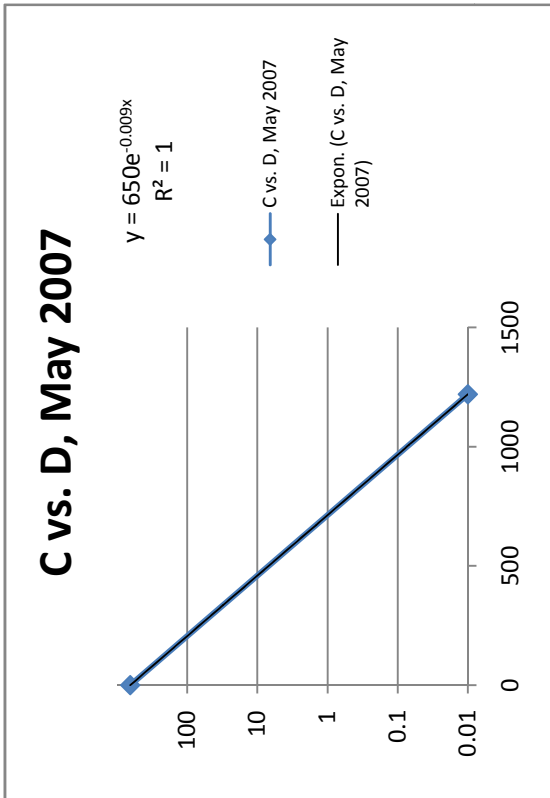
Site M6  
Bulk Decay Rate Constant Estimation (2,4-DNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



Site M6  
Bulk Decay Rate Constant Estimation (2,4-DNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

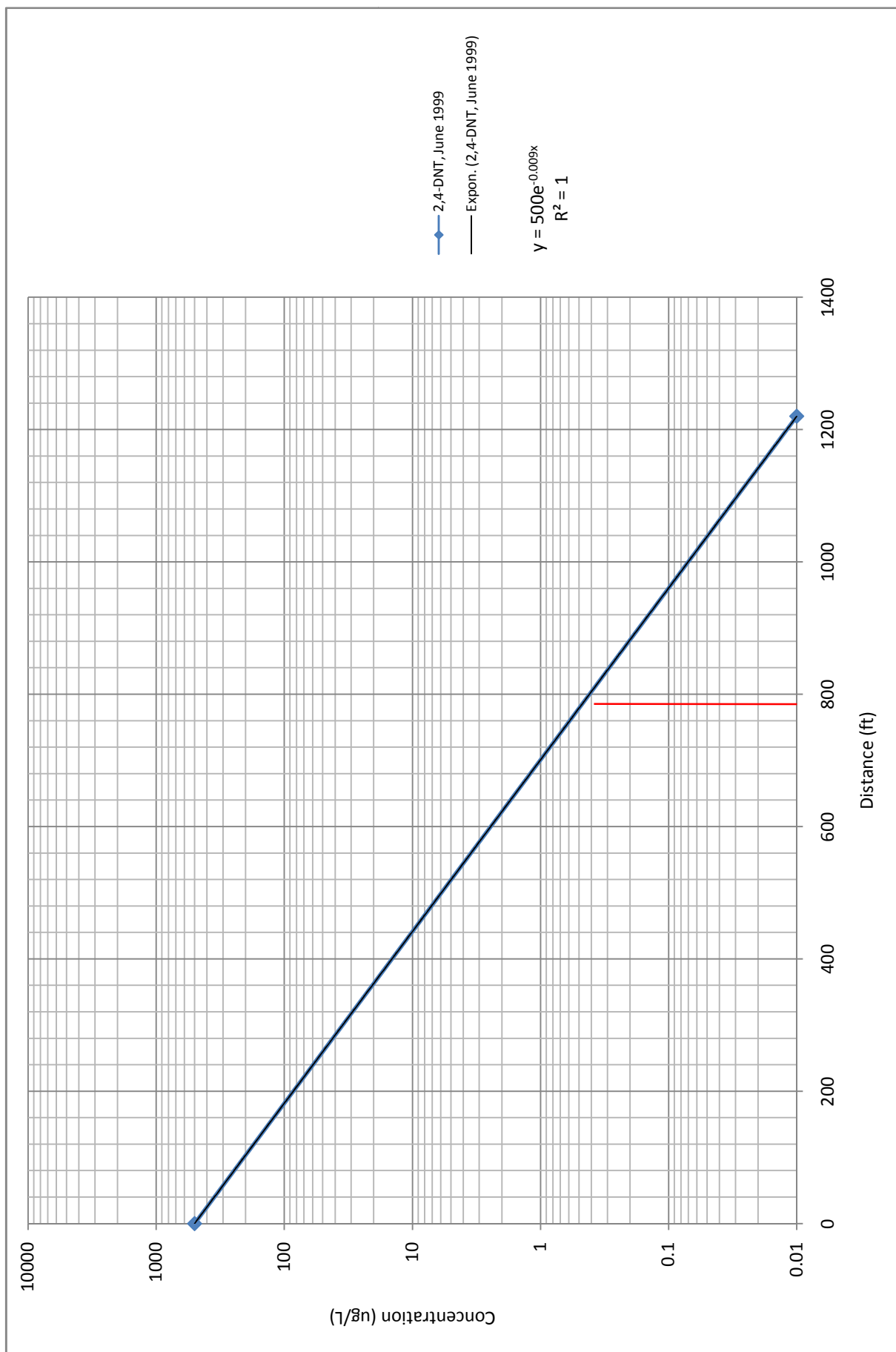


Site M6  
Bulk Decay Rate Constant Estimation (2,4-DNT)  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

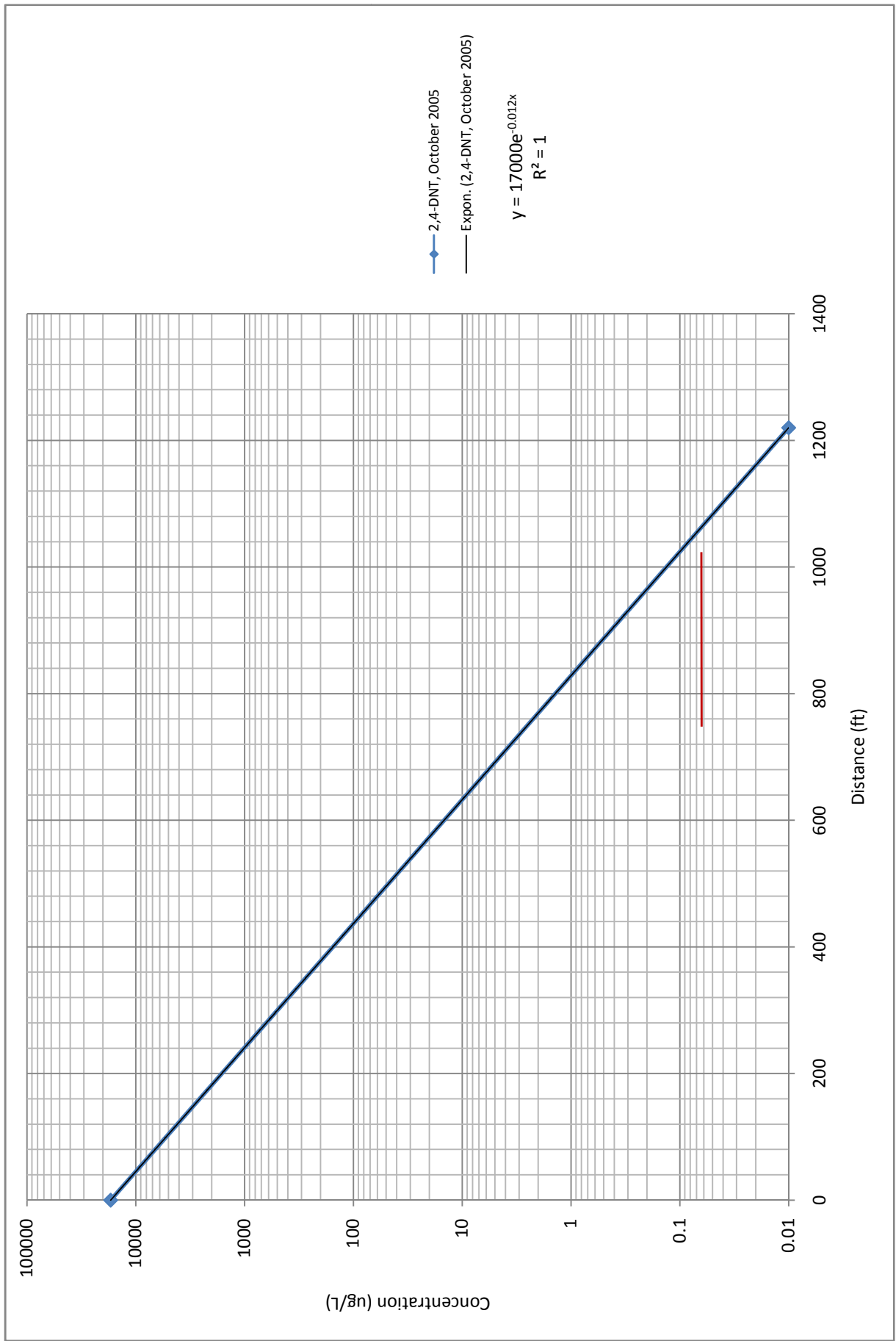




Site M6  
Extrapolated Regression Line-2,4-DNT June 1999 Data  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

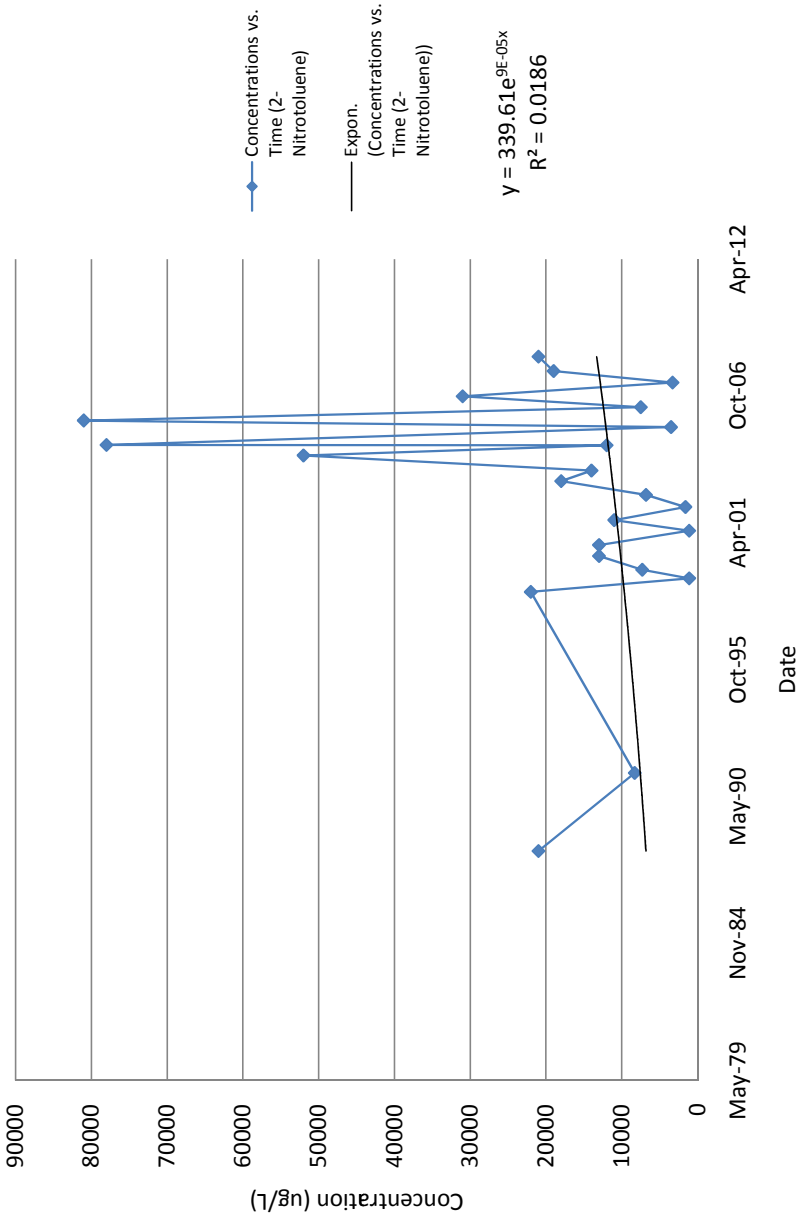


Site M6  
Extrapolated Regression Line-2,4-DNT, October 2005 Data  
Second Five-Year Review Report  
Joliet Army Ammunition Plant



Site M6 - MW212 (2-Nitrotoluene)  
 First Order Decay Rate Constant Estimation  
 Second Five-Year Review Report  
 Joliet Army Ammunition

Date	2-nitrotoluene
7/25/1988	21000
9/10/1991	8300
12/8/1998	22000
6/25/1999	1100
10/29/1999	7300
5/16/2000	13000
10/24/2000	13000
5/21/2001	1100
10/24/2001	11000
5/3/2002	1600
10/25/2002	6800
5/15/2003	18000
10/17/2003	14000
5/25/2004	52000
10/21/2004	12000
10/25/2004	78000
7/13/2005	3500
10/18/2005	81000
5/1/2006	7500
10/6/2006	31000
4/24/2007	3300
10/10/2007	19000
5/9/2008	21000



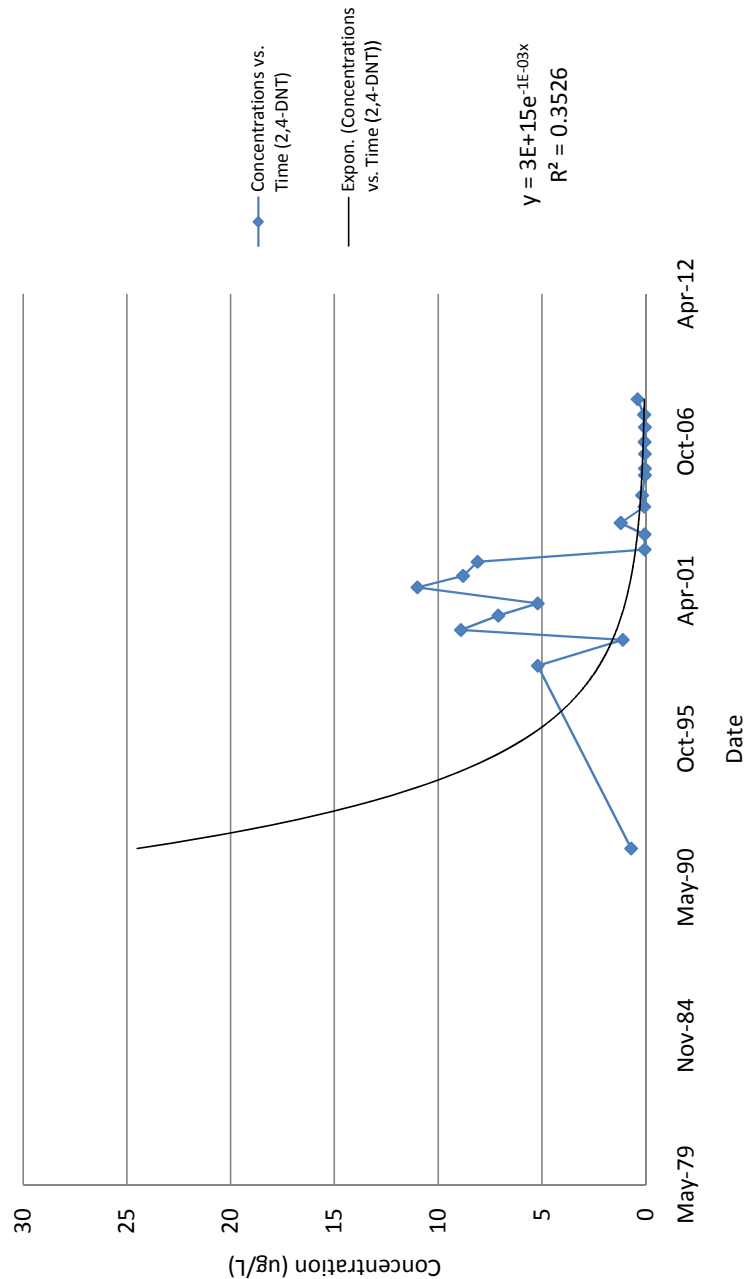
Using equation:  $C(t) = C_0 e^{-kt}$

Where:

$C(t)$  is the concentration of the contaminant as a function of time at a monitoring location  
 $C_0$  is the contaminant concentration at the beginning of the analysis  
 $t$  is the elapsed time  
 A linear regression of  $\ln(C)$  versus  $t$  gives a slope of  $-k$  and an intercept of  $C_0$  (plotted on chart)  
**First Order Decay Rate Constant ( $k$ ) is negative, indicating an increasing trend.**

Site M6 - MW315 (2,4-DNT)  
First Order Decay Rate Constant Estimation  
Second Five-Year Review Report  
Joliet Army Ammunition

Date	2,4-DNT
10/14/1991	0.701
7/10/1998	5.2
6/25/1999	1.1
11/3/1999	8.9
5/15/2000	7.1
10/26/2000	5.2
5/30/2001	11
11/1/2001	8.8
5/9/2002	8.1
10/23/2002	0.048
5/14/2003	0.052
10/16/2003	1.2
5/20/2004	0.063
10/21/2004	0.17
7/18/2005	0.032
10/17/2005	0.032
5/1/2006	0.032
10/10/2006	0.056
4/25/2007	0.039
10/11/2007	0.074
5/8/2008	0.39



Using equation:  $C(t) = C_i e^{-kt}$

Where:

$C(t)$  is the concentration of the contaminant as a function of time at a monitoring location

$C_i$  is the contaminant concentration at the beginning of the analysis

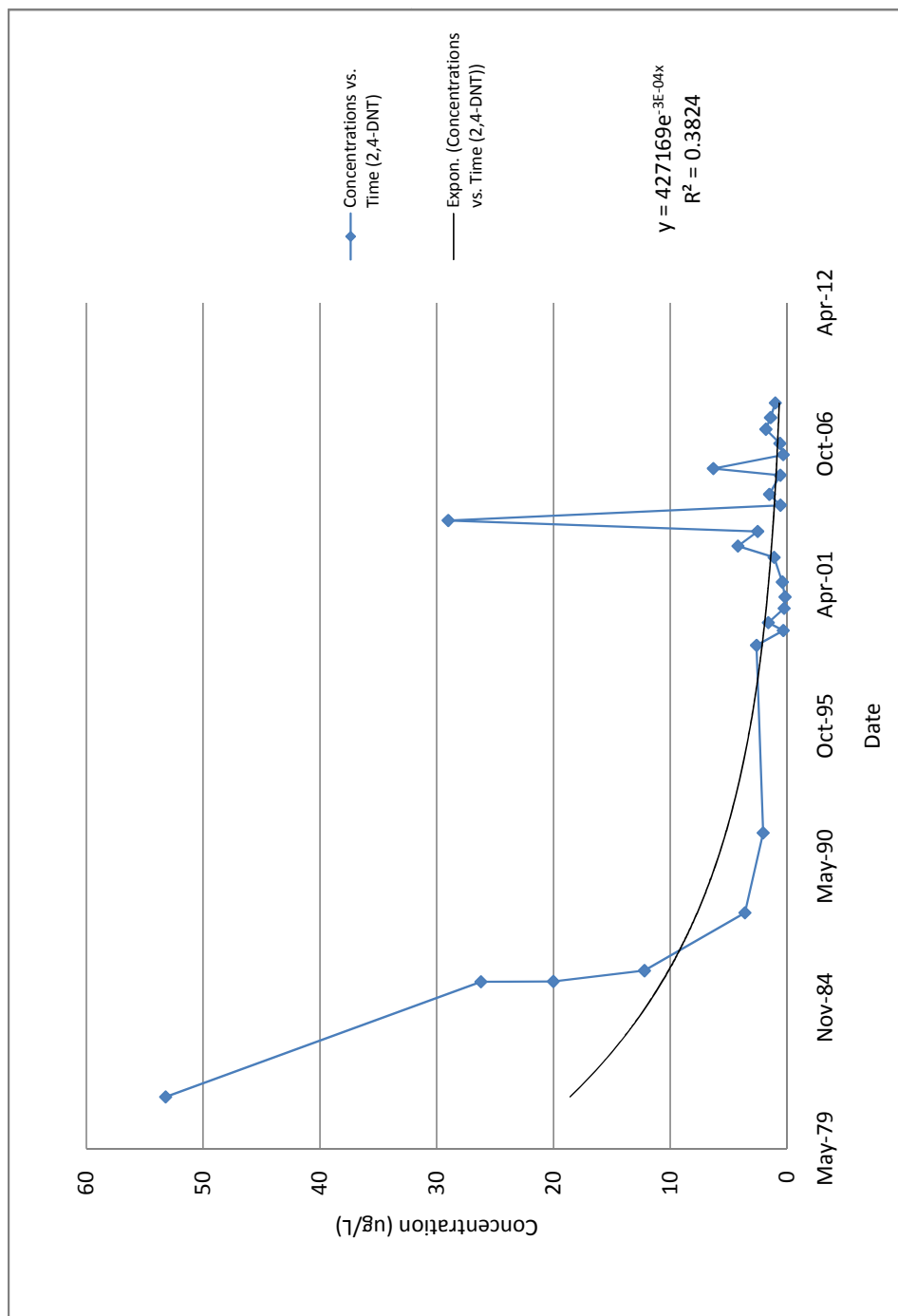
$t$  is the elapsed time

A linear regression of  $\ln(C)$  versus  $t$  gives a slope of  $-k$  and an intercept of  $C_i$  (plotted on chart)

**First Order Decay Rate Constant ( $k$ ) =  $1.0 \times 10^{-3} \text{ day}^{-1}$  or  $3.65 \times 10^{-1} \text{ year}^{-1}$**

Site M7 - MW124/124R (2,4-DNT)  
First Order Decay Rate Constant Estimation  
Second Five-Year Review Report  
Joliet Army Ammunition

Date	2,4-DNT
5/27/1981	53.2
11/15/1985	26.2
11/21/1985	20
4/22/1986	12.2
7/22/1988	3.6
8/28/1991	2.04
12/9/1998	2.6
7/7/1999	0.31
10/26/1999	1.6
5/16/2000	0.24
10/25/2000	0.16
5/24/2001	0.39
5/9/2002	1.1
10/17/2002	4.2
5/13/2003	2.5
10/15/2003	29
5/18/2004	0.55
10/20/2004	1.5
7/18/2005	0.57
10/21/2005	6.3
5/4/2006	0.32
10/11/2006	0.6
4/30/2007	1.8
10/11/2007	1.4
5/8/2008	1



Using equation:  $C(t) = C_i e^{(kt)}$

Where:

$C(t)$  is the concentration of the contaminant as a function of time at a monitoring location

$C_i$  is the contaminant concentration at the beginning of the analysis

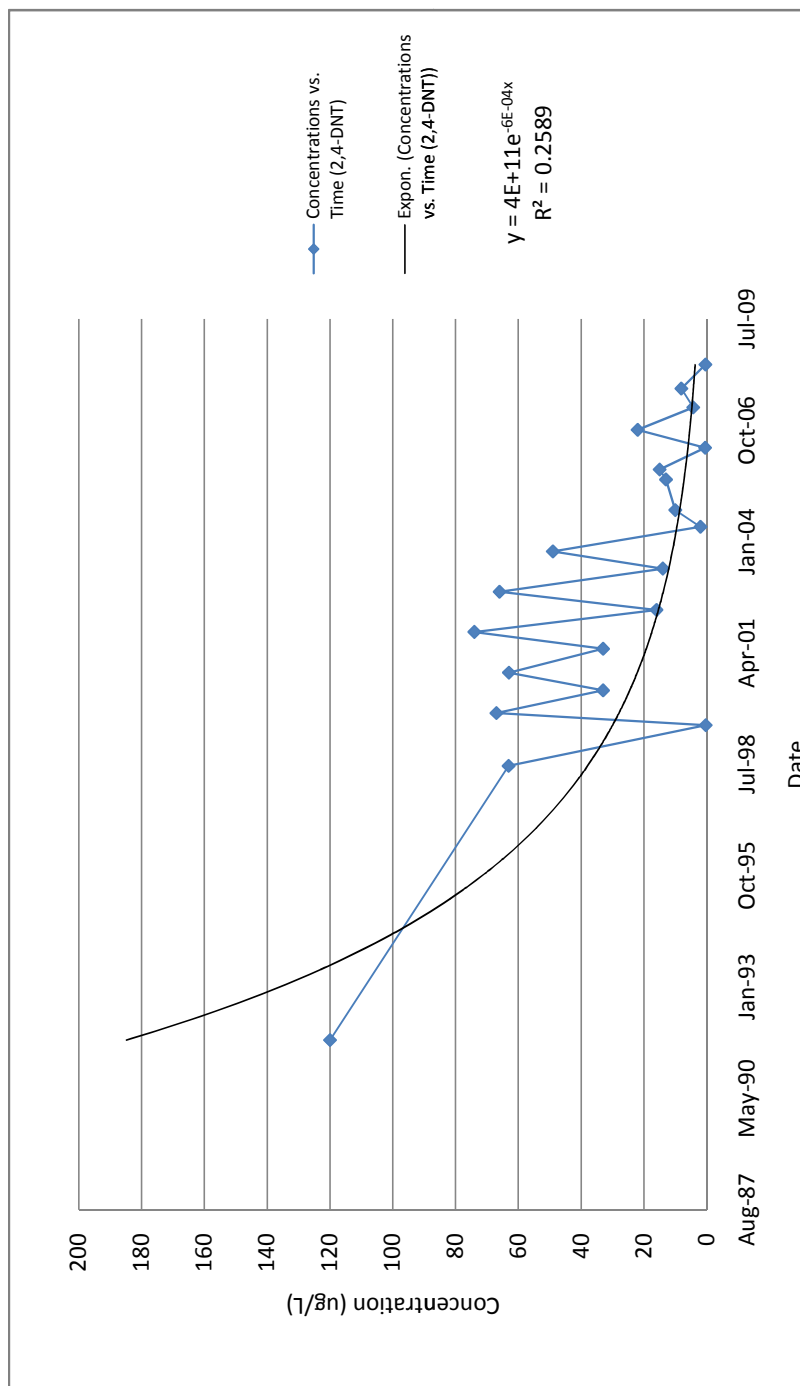
$t$  is the elapsed time

A linear regression of  $\ln(C)$  versus  $t$  gives a slope of  $-k$  and an intercept of  $C_i$  (plotted on chart)

**First Order Decay Rate Constant ( $k$ ) =  $3.0 \times 10^{-4} \text{ day}^{-1}$  or  $1.1 \times 10^{-1} \text{ year}^{-1}$**

Site M13 - MW321 (2,4-DNT)  
First Order Decay Rate Constant Estimation  
Second Five-Year Review Report  
Joliet Army Ammunition

Date	2,4-DNT
10/11/1991	120
7/8/1998	63.1
7/9/1999	0.31
10/25/1999	67
5/16/2000	33
10/23/2000	63
5/24/2001	33
10/23/2001	74
5/9/2002	16
10/18/2002	66
5/15/2003	14
10/16/2003	49
5/24/2004	2
10/21/2004	10
7/22/2005	13
10/20/2005	15
5/4/2006	0.5
10/11/2006	22
4/30/2007	4.3
10/16/2007	8.1
5/20/2008	0.39



Using equation:  $C(t) = C_i e^{(kt)}$

Where:

$C(t)$  is the concentration of the contaminant as a function of time at a monitoring location

$C_i$  is the contaminant concentration at the beginning of the analysis

$t$  is the elapsed time

A linear regression of  $\ln(C)$  versus  $t$  gives a slope of  $-k$  and an intercept of  $C_i$  (plotted on chart)

**First Order Decay Rate Constant ( $k$ ) =  $6.0 \times 10^{-4} \text{ day}^{-1}$  or  $2.19 \times 10^{-1} \text{ year}^{-1}$**

**Attachment 9**  
Sample Calculation for Estimated Cleanup Time

## EXPECTED CLEAN-UP TIME EXAMPLE CALCULATION

The following example calculation illustrates the use of existing groundwater quality data to project future contaminant reduction rates. This analysis calculates the projected time at which the concentration of a selected compound in a selected well is reduced to its RG. This particular example pertains to the reduction of RDX in well MW404 at Site L2 (Figure 6-4). The end result of this and other calculations are shown in Table 6-1. The contaminant reduction equation is based on Method 1 of EPA's Calculation of Use of First-Order Rate Constants for Monitored Natural Attenuation Studies, November 2002. The general equation used by Method 1 is:

$$t = -\ln (C_{\text{goal}}/C_{\text{start}})/k_{\text{point}}$$

where

t = time to reach remedial goal (days)

C<sub>goal</sub> = the remedial goal concentration

C<sub>start</sub> = the highest dissolved concentration observed

k<sub>point</sub> = decay rate/exponential slope

Concentrations versus time were plotted (which is also known as a regression analyses) to determine the exponential trend of the dissolved concentrations of RDX detected at MW404 (Figure 6-4) and to determine k<sub>point</sub> (a.k.a. the slope of exponential line). Based on Figure 6-4, k<sub>point</sub> for RDX at MW404 is 0.0006. The remedial goal for RDX is 2.6 ppb and the highest concentration of RDX detected at MW404 was 640 ppb in 1991.

Using the data collected and fitting it into the equation above give the following:

$$t = -\ln(2.6 \text{ ppb} / 640 \text{ ppb}) / 0.0006$$

$$t = -\ln(0.0041) / 0.0006$$

$$t = 5.5 / 0.0006$$

$$t = 9176 \text{ days} = 25.1 \text{ years}$$

So the expected time RDX will naturally attenuate to the remedial goal of 2.6 ppb will be 25.1 years after 1991 or in the year 2016.

Note: In the regression analysis, the spreadsheet calculated a correlation coefficient (R<sup>2</sup>). The closer R<sup>2</sup> is to 1.0, the greater the field data fits the first order decay equation describing biological decay. An R<sup>2</sup> value equal to 1.0 is an exact fit, and values which approach zero suggest a very poor fit. For Figures 6-1 through 6-24 R<sup>2</sup> values are displayed on the plots used for the expected clean-up time analysis and the R<sup>2</sup> values ranged between approximately 0.002 and 0.74.



## **Attachment 10**

**Mann- Kendall and Mann-Whitney U Statistical Tests for Trend Evaluation**

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site L1 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 131				
Mann Whitney U				
	1 3 5 TMB	2 4 6 TNT	2a 4 6 DNT	4a 2 6 DNT
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend
Mann Kendall (Non-Seasonal)				
	1 3 5 TNB	2 4 6 TNT	2a 4 6 DNT	4a 4 6 DNT
Trend at >80% Confidence Level	No Trend	INCREASING	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend
Mann Kendall ( Dry Season)				
	1 3 5 TNB	2 4 6 TNT	2a 4 6 DNT	4a 4 6 DNT
Trend at >80% Confidence Level	No Trend	No Trend	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend
Mann Kendall ( Wet Season)				
	1 3 5 TNB	2 4 6 TNT	2a 4 6 DNT	4a 4 6 DNT
Trend at >80% Confidence Level	No Trend	No Trend	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend
MW 173				
Mann Whitney U				
	2 4 6 TNT	RDX		
Trend at >90% Confidence Level	No Trend	No Trend		
Mann Kendall (Non-Seasonal)				
	2 4 6 TNT	RDX		
Trend at >80% Confidence Level	DECREASING	DECREASING		
Trend at >90% Confidence Level	DECREASING	DECREASING		
Mann Kendall ( Dry Season)				
	2 4 6 TNT	RDX		
Trend at >80% Confidence Level	DECREASING	DECREASING		
Trend at >90% Confidence Level	DECREASING	DECREASING		
Mann Kendall ( Wet Season)				
	2 4 6 TNT	RDX		
Trend at >80% Confidence Level	No Trend	No Trend		
Trend at >90% Confidence Level	No Trend	No Trend		
MW 172				
Mann Whitney U				
	2 4 6 TNT			
Trend at >90% Confidence Level	INCREASING			
Mann Kendall (Non-Seasonal)				
	2 4 6 TNT			
Trend at >80% Confidence Level	No Trend			
Trend at >90% Confidence Level	No Trend			
Mann Kendall ( Dry Season)				
	2 4 6 TNT			
Trend at >80% Confidence Level	DECREASING			
Trend at >90% Confidence Level	No Trend			
Mann Kendall ( Wet Season)				
	2 4 6 TNT			
Trend at >80% Confidence Level	No Trend			
Trend at >90% Confidence Level	No Trend			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site L1 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

WES 1		
Mann Whitney U		
	1 3 5 TMB	2 4 6 TNT
Trend at >90% Confidence Level	No Trend	No Trend
Mann Kendall (Non-Seasonal)		
	1 3 5 TNB	2 4 6 TNT
Trend at >80% Confidence Level	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend
Mann Kendall ( Dry Season)		
	1 3 5 TNB	2 4 6 TNT
Trend at >80% Confidence Level	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend
Mann Kendall ( Wet Season)		
	1 3 5 TNB	2 4 6 TNT
Trend at >80% Confidence Level	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend

**Site L1 - MW131 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>						<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>	
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>							
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review		BRRTS No. =		Well Number = MW 131
Event Number	Days After Previous Round	Compound-> Sampling Date (most recent last)	1 3 5 TMB Concentration (leave blank if no data)	2 4 6 TNT Concentration (leave blank if no data)	2a 46 DNT Concentration (leave blank if no data)	4a 2 6 DNT Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	- - -	10/26/2004	2000	980	0	0	
2	274	7/27/2005	1600	890	36	26	
3	90	10/25/2005	1800	1300	48	33	
4	192	5/5/2006	3200	4400	75	62	
5	167	10/19/2006	180	150	29	26	
6	194	5/1/2007	4200	9900	0	0	
7	168	10/16/2007	1700	1100	0	0	
8	210	5/14/2008	3,100.00	4,900.00	100	63	
Error Check, Blank If No Errors Detected							n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL							
U Statistic =			8.0	10.0	6.0	6.5	n<8
Trend ≥ 90 % Confidence Level			No Trend	No Trend	No Trend	No Trend	n<8
Data Entry By : GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L1 - MW131 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>		
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 131	
Compound ->		1 3 5 TNB	2 4 6 TNT	2a 4 6 DNT	4a 4 6 DNT		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/23/2003	1100	840	29	27		
2	5/26/2004	4400	8300	130	87		
3	10/26/2004	2000	980	2	3.25		
4	7/27/2005	1600	890	36	26		
5	10/25/2005	1800	1300	48	33		
6	5/5/2006	3200	4400	75	62		
7	10/19/2006	180	150	29	26		
8	5/1/2007	4200	9900	2	3.25		
9	10/16/2007	1700	1100	2	3.25		
10	5/14/2008	3100	4900	100	63		
Mann Kendall Statistic (S) =		3.0	11.0	-3.0	-5.0	0.0	0.0
Number of Rounds (n) =		10	10	10	10	0	0
Average =		2328.00	3276.00	45.30	33.38	#DIV/0!	#DIV/0!
Standard Deviation =		1357.553	3469.371	43.841	28.761	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.583	1.059	0.968	0.862	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	INCREASING	No Trend	No Trend	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L1 - MW131 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>		
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 131	
Compound ->		1 3 5 TNB	2 4 6 TNT	2a 4 6 DNT	4a 4 6 DNT		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/23/2003	1100	840	29	27		
2							
3	10/26/2004	2000	980	2	3.25		
4							
5	10/25/2005	1800	1300	48	33		
6							
7	10/19/2006	180	150	29	26		
8							
9	10/16/2007	1700	1100	2	3.25		
10							
Mann Kendall Statistic (S) =		-2.0	2.0	-2.0	-3.0	0.0	0.0
Number of Rounds (n) =		5	5	5	5	0	0
Average =		1356.00	874.00	22.00	18.50	#DIV/0!	#DIV/0!
Standard Deviation =		738.024	438.497	19.837	14.176	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.544	0.502	0.902	0.766	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	No Trend	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L1 - MW131 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>		
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 131	
Compound ->		1 3 5 TNB	2 4 6 TNT	2a 4 6 DNT	4a 4 6 DNT		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/26/2004	4400	8300	130	87		
3							
4	7/27/2005	1600	890	36	26		
5							
6	5/5/2006	3200	4400	75	62		
7							
8	5/1/2007	4200	9900	2	3.25		
9							
10	5/14/2008	3100	4900	100	63		
Mann Kendall Statistic (S) =		-2.0	2.0	-2.0	-2.0	0.0	0.0
Number of Rounds (n) =		5	5	5	5	0	0
Average =		3300.00	5678.00	68.60	48.25	#DIV/0!	#DIV/0!
Standard Deviation =		1113.553	3530.711	50.733	33.273	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.337	0.622	0.740	0.690	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	No Trend	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Site L1 - MW172 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>									
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 172			
		Compound->	2 4 6 TNT						
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	
1	- - -	10/26/2004	2.4						
2	273	7/26/2005	1.2						
3	91	10/25/2005	1.9						
4	192	5/5/2006	2.3						
5	167	10/19/2006	2.6						
6	195	5/1/2007	5.1						
7	168	10/16/2007	1.5						
8	211	5/14/2008	3						
Error Check, Blank If No Errors Detected				n<8	n<8	n<8	n<8	n<8	
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL									
U Statistic =		13.0	n<8	n<8	n<8	n<8	n<8	n<8	
Trend ≥ 90 % Confidence Level		INCREASING	n<8	n<8	n<8	n<8	n<8	n<8	
Data Entry By : GBG				Date = 16-Feb-09		Checked By = RL			



**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L1 - MW172 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 172		
Compound ->		2 4 6 TNT					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/23/2003	3					
2	5/26/2004	5.1					
3	10/26/2004	2.4					
4	7/26/2005	1.2					
5	10/25/2005	1.9					
6	5/5/2006	2.3					
7	10/19/2006	2.6					
8	5/1/2007	5.1					
9	10/16/2007	1.5					
10	5/14/2008	3					
Mann Kendall Statistic (S) =		-1.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		2.81	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		1.340	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.477	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L1 - MW172 - Mann-Kendall Statistical Test Results For Dry Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 172		
Compound ->		2 4 6 TNT					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/23/2003	3					
2							
3	10/26/2004	2.4					
4							
5	10/25/2005	1.9					
6							
7	10/19/2006	2.6					
8							
9	10/16/2007	1.5					
10							
Mann Kendall Statistic (S) =		-6.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		2.28	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		0.589	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.258	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L1 - MW172 - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 172	
Compound ->		2 4 6 TNT					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/26/2004	5.1					
3							
4	7/26/2005	1.2					
5							
6	5/5/2006	2.3					
7							
8	5/1/2007	5.1					
9							
10	5/14/2008	3					
Mann Kendall Statistic (S) =		1.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		3.34	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		1.730	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.518	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Site L1 - MW173 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.									
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 173	
		Compound->	2 4 6 TNT		RDX				
Event	Days After	Sampling	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Number	Previous	Date (most	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank
	Round	recent last)	if no data)	if no data)	if no data)	if no data)	if no data)	if no data)	if no data)
1	- - -	10/26/2004	26	17					
2	273	7/26/2005	21	13					
3	91	10/25/2005	18	13					
4	192	5/5/2006	15	11					
5	167	10/19/2006	9.6	11					
6	195	5/1/2007	33	15					
7	168	10/16/2007	7.2	11					
8	211	5/14/2008	14.00	9.30					
Error Check, Blank If No Errors Detected					n<8		n<8		n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL									
U Statistic =			4.0		4.0		n<8		n<8
Trend ≥ 90 % Confidence Level			No Trend		No Trend		n<8		n<8
Data Entry By : GBG					Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L1 - MW173 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 173	
Compound ->		2 4 6 TNT	RDX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/23/2003	23	17				
2	5/26/2004	28	14				
3	10/26/2004	26	17				
4	7/26/2005	21	13				
5	10/25/2005	18	13				
6	5/5/2006	15	11				
7	10/19/2006	9.6	11				
8	5/1/2007	33	15				
9	10/16/2007	7.2	11				
10	5/14/2008	14	9.3				
Mann Kendall Statistic (S) =		-23.0	-28.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		19.48	13.13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		8.255	2.636	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.424	0.201	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site L1 - MW173 - Mann-Kendall Statistical Test Results For Dry Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 173	
Compound ->		2 4 6 TNT		RDX			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/23/2003	23	17				
2							
3	10/26/2004	26	17				
4							
5	10/25/2005	18	13				
6							
7	10/19/2006	9.6	11				
8							
9	10/16/2007	7.2	11				
10							
Mann Kendall Statistic (S) =		-8.0	-8.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		16.76	13.80	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		8.193	3.033	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.489	0.220	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L1 - MW173 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 173	
Compound ->		2 4 6 TNT	RDX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/26/2004	28	14				
3							
4	7/26/2005	21	13				
5							
6	5/5/2006	15	11				
7							
8	5/1/2007	33	15				
9							
10	5/14/2008	14	9.3				
Mann Kendall Statistic (S) =		-4.0	-4.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		22.20	12.46	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		8.228	2.304	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.371	0.185	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Site L1 - WES1 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review		BRRTS No. =		Well Number = WES1	
		Compound->	1 3 5 TMB	2 4 6 TNT				
Event	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
Number								
1	- - -	10/26/2004	34	33				
2	274	7/27/2005	41	50				
3	90	10/25/2005	2	2.6				
4	192	5/5/2006	14	14				
5	167	10/19/2006	4.5	3.7				
6	194	5/1/2007	71	67				
7	168	10/16/2007	20	35				
8	210	5/14/2008	34	40				
Error Check, Blank If No Errors Detected					n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			9.5	11.0	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	No Trend	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 16-Feb-09		Checked By = RL		



**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L1 - WES1 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = WES1	
Compound ->		1 3 5 TNB	2 4 6 TNT				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/23/2003	12	27				
2	5/26/2004	27	39				
3	10/26/2004	34	33				
4	7/27/2005	41	50				
5	10/25/2005	2	2.6				
6	5/5/2006	14	14				
7	10/19/2006	4.5	3.7				
8	5/1/2007	71	67				
9	10/16/2007	20	35				
10	5/14/2008	34	40				
Mann Kendall Statistic (S) =		8.0	7.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		25.95	31.13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		20.530	20.217	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.791	0.649	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site L1 - WES1 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = WES1	
Compound ->		1 3 5 TNB	2 4 6 TNT				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/23/2003	12	27				
2							
3	10/26/2004	34	33				
4							
5	10/25/2005	2	2.6				
6							
7	10/19/2006	4.5	3.7				
8							
9	10/16/2007	20	35				
10							
Mann Kendall Statistic (S) =		0.0	2.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		14.50	20.26	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		12.971	15.899	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.895	0.785	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site L1 - WES1 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = WES1	
Compound ->		1 3 5 TNB	2 4 6 TNT				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/26/2004	27	39				
3							
4	7/27/2005	41	50				
5							
6	5/5/2006	14	14				
7							
8	5/1/2007	71	67				
9							
10	5/14/2008	34	40				
Mann Kendall Statistic (S) =		2.0	2.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		37.40	42.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		21.267	19.274	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.569	0.459	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site L2 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 404		
Mann Whitney U		
	RDX	HMX
Trend at >90% Confidence Level	DECREASING	DECREASING
Mann Kendall (Non-Seasonal)		
	RDX	HMX
Trend at >80% Confidence Level	DECREASING	DECREASING
Trend at >90% Confidence Level	DECREASING	DECREASING
Mann Kendall ( Dry Season)		
	RDX	HMX
Trend at >80% Confidence Level	DECREASING	DECREASING
Trend at >90% Confidence Level	DECREASING	No Trend
Mann Kendall ( Wet Season)		
	RDX	HMX
Trend at >80% Confidence Level	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend

**Site L2 - MW404 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.								
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review		BRRTS No. =		Well Number = MW 404	
		Compound->	RDX	HMX				
Event	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
Number								
1	- - -	10/26/2004	100	350				
2	273	7/26/2005	99	330				
3	91	10/25/2005	57	270				
4	196	5/9/2006	33	100				
5	157	10/13/2006	78	270				
6	197	4/27/2007	21	45				
7	173	10/17/2007	52	250				
8	215	5/19/2008	0.00	0.00				
Error Check, Blank If No Errors Detected					n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			3.0	2.5	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			DECREASING	DECREASING	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 17-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L2 - MW404 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 404	
Compound ->		RDX	HMX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/24/2003	320	79				
2	5/25/2004	15	7.4				
3	10/26/2004	350	100				
4	7/26/2005	330	99				
5	10/25/2005	270	57				
6	5/9/2006	100	33				
7	10/13/2006	270	78				
8	4/27/2007	45	21				
9	10/17/2007	250	52				
10	5/19/2008	0.20	0.39				
Mann Kendall Statistic (S) =		-20.0	-19.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		195.02	52.68	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		139.054	36.382	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.713	0.691	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L2 - MW404 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 404	
Compound ->		RDX	HMX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/24/2003	320	79				
2							
3	10/26/2004	350	100				
4							
5	10/25/2005	270	57				
6							
7	10/13/2006	270	78				
8							
9	10/17/2007	250	52				
10							
Mann Kendall Statistic (S) =		-7.0	-6.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		292.00	73.20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		41.473	19.280	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.142	0.263	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L2 - MW404 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 404	
Compound ->		RDX	HMX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/25/2004	15	7.4				
3							
4	7/26/2005	330	99				
5							
6	5/9/2006	100	33				
7							
8	4/27/2007	45	21				
9							
10	5/19/2008	0.20	0.39				
Mann Kendall Statistic (S) =		-4.0	-4.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		98.04	32.16	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		135.177	39.418	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		1.379	1.226	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV > 1 NON-STABLE	CV > 1 NON-STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			



**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site L3 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 412		
Mann Whitney U		
	RDX	HMX
Trend at >90% Confidence Level	No Trend	No Trend
Mann Kendall (Non-Seasonal)		
	RDX	HMX
Trend at >80% Confidence Level	DECREASING	No Trend
Trend at >90% Confidence Level	No Trend	No Trend
Mann Kendall ( Dry Season)		
	RDX	HMX
Trend at >80% Confidence Level	INCREASING	INCREASING
Trend at >90% Confidence Level	INCREASING	INCREASING
Mann Kendall ( Wet Season)		
	RDX	HMX
Trend at >80% Confidence Level	DECREASING	DECREASING
Trend at >90% Confidence Level	DECREASING	DECREASING
MW 633		
Mann Whitney U		
	RDX	
Trend at >90% Confidence Level	No Trend	
Mann Kendall (Non-Seasonal)		
	RDX	
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
Mann Kendall ( Dry Season)		
	RDX	
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
Mann Kendall ( Wet Season)		
	RDX	
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	

**Site L3 - MW412 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.								
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review		BRRTS No. =		Well Number = MW 412	
		Compound->	RDX	HMX				
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	---	10/27/2004	11	68				
2	273	7/27/2005	25	230				
3	86	10/21/2005	28	200				
4	196	5/5/2006	17	100				
5	166	10/18/2006	14	71				
6	191	4/27/2007	1.8	5.7				
7	173	10/17/2007	39	300				
8	216	5/21/2008	0.00	0.00				
Error Check, Blank If No Errors Detected					n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			5.0	5.0	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	No Trend	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 17-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L3 - MW412 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 412	
Compound ->		RDX	HMX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/28/2003	58	11				
2	5/26/2004	390	40				
3	10/27/2004	68	11				
4	7/27/2005	230	25				
5	10/21/2005	200	28				
6	5/5/2006	100	17				
7	10/18/2006	71	14				
8	4/27/2007	5.7	1.8				
9	10/17/2007	300	39				
10	5/21/2008	0.20	0.39				
Mann Kendall Statistic (S) =		-11.0	-10.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		142.29	18.72	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		131.486	13.970	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.924	0.746	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L3 - MW412 - Mann-Kendall Statistical Test Results For Dry Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 412	
Compound ->		RDX	HMX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/28/2003	58	11				
2							
3	10/27/2004	68	11				
4							
5	10/21/2005	200	28				
6							
7	10/18/2006	71	14				
8							
9	10/17/2007	300	39				
10							
Mann Kendall Statistic (S) =		8.0	7.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		139.40	20.60	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		107.083	12.462	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.768	0.605	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	INCREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	INCREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L3 - MW412 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 412	
Compound ->		RDX	HMX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/26/2004	390	40				
3							
4	7/27/2005	230	25				
5							
6	5/5/2006	100	17				
7							
8	4/27/2007	5.7	1.8				
9							
10	5/21/2008	0.20	0.39				
Mann Kendall Statistic (S) =		-10.0	-10.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		145.18	16.84	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		165.564	16.582	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		1.140	0.985	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Site L3 - MW633 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>						
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>											
Site Name =				Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number =	MW 633	
		Compound->	RDX								
Event	Days After	Sampling	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	
Number	Previous	Date (most	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank	
	Round	recent last)	if no data)	if no data)	if no data)	if no data)	if no data)	if no data)	if no data)	if no data)	
1	- - -	10/26/2004	3.8								
2	274	7/27/2005	1.4								
3	86	10/21/2005	11								
4	201	5/10/2006	0								
5	161	10/18/2006	0								
6	191	4/27/2007	5.1								
7	173	10/17/2007	300								
8	216	5/21/2008	390								
Error Check, Blank If No Errors Detected				n<8		n<8		n<8		n<8	
<b>DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL</b>											
U Statistic =			11.5		n<8		n<8		n<8		n<8
Trend ≥ 90 % Confidence Level			No Trend		n<8		n<8		n<8		n<8
Data Entry By : GBG				Date = 17-Feb-09			Checked By = RL				

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L3 - MW633 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 633		
Compound ->		RDX					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/27/2003	9.8					
2	5/25/2004	2.1					
3	10/26/2004	3.8					
4	7/27/2005	1.4					
5	10/21/2005	11					
6	5/10/2006	0.005					
7	10/18/2006	0.005					
8	4/27/2007	5.1					
9	10/17/2007	300					
10	5/21/2008	390					
Mann Kendall Statistic (S) =		10.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		72.32	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		145.320	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		2.009	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV > 1 NON-STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L3 - MW633 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
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Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 633		
Compound ->		RDX					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/27/2003	9.8					
2							
3	10/26/2004	3.8					
4							
5	10/21/2005	11					
6							
7	10/18/2006	0.005					
8							
9	10/17/2007	300					
10							
Mann Kendall Statistic (S) =		2.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		64.92	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		131.489	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		2.025	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV > 1 NON-STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		



**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L3 - MW633 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 633	
Compound ->		RDX					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/25/2004	2.1					
3							
4	7/27/2005	1.4					
5							
6	5/10/2006	0.005					
7							
8	4/27/2007	5.1					
9							
10	5/21/2008	390					
Mann Kendall Statistic (S) =		4.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		79.72	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		173.461	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		2.176	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV > 1 NON-STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site L14 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 508			
Mann Whitney U			
	HMX	RDX	4a 2 6 DNT
Trend at >90% Confidence Level	DECREASING	DECREASING	No Trend
Mann Kendall (Non-Seasonal)			
	HMX	RDX	4a 2 6 DNT
Trend at >80% Confidence Level	DECREASING	DECREASING	DECREASING
Trend at >90% Confidence Level	DECREASING	DECREASING	DECREASING
Mann Kendall ( Dry Season)			
	HMX	RDX	4a 2 6 DNT
Trend at >80% Confidence Level	DECREASING	DECREASING	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend
Mann Kendall ( Wet Season)			
	HMX	RDX	4a 2 6 DNT
Trend at >80% Confidence Level	DECREASING	DECREASING	DECREASING
Trend at >90% Confidence Level	DECREASING	DECREASING	No Trend
MW 511			
Mann Whitney U			
	RDX		
Trend at >90% Confidence Level	No Trend		
Mann Kendall (Non-Seasonal)			
	RDX		
Trend at >80% Confidence Level	No Trend		
Trend at >90% Confidence Level	No Trend		
Mann Kendall ( Dry Season)			
	RDX		
Trend at >80% Confidence Level	No Trend		
Trend at >90% Confidence Level	No Trend		
Mann Kendall ( Wet Season)			
	RDX		
Trend at >80% Confidence Level	No Trend		
Trend at >90% Confidence Level	No Trend		
MW 512			
Mann Whitney U			
	RDX		
Trend at >90% Confidence Level	No Trend		
Mann Kendall (Non-Seasonal)			
	RDX		
Trend at >80% Confidence Level	No Trend		
Trend at >90% Confidence Level	No Trend		
Mann Kendall ( Dry Season)			
	RDX		
Trend at >80% Confidence Level	No Trend		
Trend at >90% Confidence Level	No Trend		
Mann Kendall ( Wet Season)			
	RDX		
Trend at >80% Confidence Level	DECREASING		
Trend at >90% Confidence Level	No Trend		

**Site L14 - MW508 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>						<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>		
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 508		
		Compound->	4a 2 6 DNT	HMx	RDX			
Event	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
Number								
1	- - -	10/25/2004	0.00	150	520			
2	275	7/27/2005	0.00	33	170			
3	89	10/24/2005	0.91	91	430			
4	196	5/8/2006	0.00	2.1	1.4			
5	161	10/16/2006	0.00	0.00	0.00			
6	198	5/2/2007	0.00	0.00	0.00			
7	166	10/15/2007	0.00	0.00	0.00			
8	217	5/20/2008	0.00	0.00	0.00			
Error Check, Blank If No Errors Detected						n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			6.0	0.0	0.0	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	DECREASING	DECREASING	n<8	n<8	n<8
Data Entry By : GBG				Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L14 - MW508 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 508	
Compound ->		HMX	RDX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	45	110				
2	5/27/2004	37	110				
3	10/25/2004	150	520				
4	7/27/2005	33	170				
5	10/24/2005	91	430				
6	5/8/2006	2.1	1.4				
7	10/16/2006	0.02	0.025				
8	5/2/2007	0.02	0.025				
9	10/15/2007	0.02	0.025				
10	5/20/2008	0.02	0.025				
Mann Kendall Statistic (S) =		-29.0	-24.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		35.82	134.15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		49.932	191.032	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		1.394	1.424	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site L14 - MW508 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 508	
Compound ->		HMX		RDX			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	45	110				
2							
3	10/25/2004	150	520				
4							
5	10/24/2005	91	430				
6							
7	10/16/2006	0.02	0.025				
8							
9	10/15/2007	0.02	0.025				
10							
Mann Kendall Statistic (S) =		-5.0	-5.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		57.21	212.01	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		64.114	246.302	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		1.121	1.162	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L14 - MW508 - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 508	
Compound ->		HMX	RDX				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/27/2004	37	110				
3							
4	7/27/2005	33	170				
5							
6	5/8/2006	2.1	1.4				
7							
8	5/2/2007	0.02	0.025				
9							
10	5/20/2008	0.02	0.025				
Mann Kendall Statistic (S) =		-9.0	-7.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	0	0	0	0
Average =		14.43	56.29	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		18.852	79.308	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		1.307	1.409	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Site L14 - MW511 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>					
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>										
Site Name =				Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number =	MW 511
		Compound->	RDX							
Event	Days After	Sampling	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	
Number	Previous	Date (most	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank	(leave blank	
	Round	recent last)	if no data)	if no data)	if no data)	if no data)	if no data)	if no data)	if no data)	
1	- - -	10/25/2004	120							
2	275	7/27/2005	130							
3	89	10/24/2005	80							
4	196	5/8/2006	5.5							
5	161	10/16/2006	110							
6	199	5/2/2007	0							
7	166	10/15/2007	170							
8	217	5/20/2008	0							
Error Check, Blank If No Errors Detected				n<8		n<8		n<8		n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL										
U Statistic =			6.0	n<8	n<8	n<8	n<8	n<8	n<8	
Trend ≥ 90 % Confidence Level			No Trend	n<8	n<8	n<8	n<8	n<8	n<8	
Data Entry By : GBG				Date = 16-Feb-09			Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L14 - MW511 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 511		
Compound ->		RDX					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	160					
2	5/27/2004	0.039					
3	10/25/2004	120					
4	7/27/2005	130					
5	10/24/2005	80					
6	5/8/2006	5.5					
7	10/16/2006	110					
8	5/2/2007	0.039					
9	10/15/2007	170					
10	5/20/2008	0.039					
Mann Kendall Statistic (S) =		-10.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		77.56	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		70.057	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.903	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09	Checked By = RL			



**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L14 - MW511 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 511		
Compound ->		RDX					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	160					
2							
3	10/25/2004	120					
4							
5	10/24/2005	80					
6							
7	10/16/2006	110					
8							
9	10/15/2007	170					
10							
Mann Kendall Statistic (S) =		0.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		128.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		37.014	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.289	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L14 - MW511 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 511	
Compound ->		RDX					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/27/2004	0.039					
3							
4	7/27/2005	130					
5							
6	5/8/2006	5.5					
7							
8	5/2/2007	0.039					
9							
10	5/20/2008	0.039					
Mann Kendall Statistic (S) =		-3.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		27.12	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		57.558	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		2.122	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV > 1 NON-STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Site L14 - MW512 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>									
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 512			
		Compound->	RDX						
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	- - -	10/26/2004	230						
2	274	7/27/2005	300						
3	89	10/24/2005	190						
4	196	5/8/2006	290						
5	161	10/16/2006	290						
6	198	5/1/2007	11						
7	167	10/15/2007	200						
8	218	5/21/2008	10						
Error Check, Blank If No Errors Detected				n<8	n<8	n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL									
U Statistic =			3.5	n<8	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	n<8	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L14 - MW512 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 512		
Compound ->		RDX					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	210					
2	5/27/2004	21					
3	10/26/2004	230					
4	7/27/2005	300					
5	10/24/2005	190					
6	5/8/2006	290					
7	10/16/2006	290					
8	5/1/2007	11					
9	10/15/2007	200					
10	5/21/2008	10					
Mann Kendall Statistic (S) =		-10.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		175.20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		117.857	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.673	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L14 - MW512 - Mann-Kendall Statistical Test Results For Dry Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 512		
Compound ->		RDX					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	210					
2							
3	10/26/2004	230					
4							
5	10/24/2005	190					
6							
7	10/16/2006	290					
8							
9	10/15/2007	200					
10							
Mann Kendall Statistic (S) =		0.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		224.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		39.749	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.177	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site L14 - MW512 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 512	
Compound ->		RDX					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/27/2004	21					
3							
4	7/27/2005	300					
5							
6	5/8/2006	290					
7							
8	5/1/2007	11					
9							
10	5/21/2008	10					
Mann Kendall Statistic (S) =		-6.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		126.40	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		154.011	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		1.218	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 107		
Mann Whitney U		
	SULFATE	
Trend at >90% Confidence Level	No Trend	
	Mann Kendall (Non-Seasonal)	
	SULFATE	
Trend at >80% Confidence Level	DECREASING	
Trend at >90% Confidence Level	No Trend	
	Mann Kendall ( Dry Season)	
	SULFATE	
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
	Mann Kendall ( Wet Season)	
	SULFATE	
Trend at >80% Confidence Level	DECREASING	
Trend at >90% Confidence Level	DECREASING	

MW 231		
Mann Whitney U		
	SULFATE	
Trend at >90% Confidence Level	No Trend	
	Mann Kendall (Non-Seasonal)	
	SULFATE	
Trend at >80% Confidence Level	INCREASING	
Trend at >90% Confidence Level	INCREASING	
	Mann Kendall ( Dry Season)	
	SULFATE	
Trend at >80% Confidence Level	INCREASING	
Trend at >90% Confidence Level	INCREASING	
	Mann Kendall ( Wet Season)	
	SULFATE	
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	

MW 351		
Mann Whitney U		
	SULFATE	
Trend at >90% Confidence Level	No Trend	
	Mann Kendall (Non-Seasonal)	
	SULFATE	
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
	Mann Kendall ( Dry Season)	
	SULFATE	
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
	Mann Kendall ( Wet Season)	
	SULFATE	
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 640		
Mann Whitney U		
SULFATE		
Trend at >90% Confidence Level	No Trend	
Mann Kendall (Non-Seasonal)		
SULFATE		
Trend at >80% Confidence Level	INCREASING	
Trend at >90% Confidence Level	No Trend	
Mann Kendall ( Dry Season)		
SULFATE		
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
Mann Kendall ( Wet Season)		
SULFATE		
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
MW 641		
Mann Whitney U		
SULFATE		
Trend at >90% Confidence Level	No Trend	
Mann Kendall (Non-Seasonal)		
SULFATE		
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
Mann Kendall ( Dry Season)		
SULFATE		
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
Mann Kendall ( Wet Season)		
SULFATE		
Trend at >80% Confidence Level	INCREASING	
Trend at >90% Confidence Level	No Trend	
MW 642		
Mann Whitney U		
SULFATE		
Trend at >90% Confidence Level	No Trend	
Mann Kendall (Non-Seasonal)		
SULFATE		
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
Mann Kendall ( Dry Season)		
SULFATE		
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	
Mann Kendall ( Wet Season)		
SULFATE		
Trend at >80% Confidence Level	No Trend	
Trend at >90% Confidence Level	No Trend	



**Site M1 - MW107 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 107		
		Compound->	SULFATE					
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	--	10/18/2004	34000					
2	267	7/12/2005	36000					
3	93	10/13/2005	35000					
4	197	4/28/2006	24000					
5	171	10/16/2006	53000					
6	185	4/18/2007	26000					
7	169	10/4/2007	38000					
8	209	4/30/2008	21000					
Error Check, Blank If No Errors Detected				n<8	n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			9.0	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW107 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 107		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/21/2003	38000					
2							
3	10/18/2004	34000					
4							
5	10/13/2005	35000					
6							
7	10/16/2006	53000					
8							
9	10/4/2007	38000					
10							
Mann Kendall Statistic (S) =		3.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		39600.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		7700.649	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.194	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW107 - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 107		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/17/2004	45000					
3							
4	7/12/2005	36000					
5							
6	4/28/2006	24000					
7							
8	4/18/2007	26000					
9							
10	4/30/2008	21000					
Mann Kendall Statistic (S) =		-8.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		30400.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		9914.636	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.326	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M1 - MW107 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 107		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/21/2003	38000					
2	5/17/2004	45000					
3	10/18/2004	34000					
4	7/12/2005	36000					
5	10/13/2005	35000					
6	4/28/2006	24000					
7	10/16/2006	53000					
8	4/18/2007	26000					
9	10/4/2007	38000					
10	4/30/2008	21000					
Mann Kendall Statistic (S) =		-14.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		35000.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		9672.412	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.276	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Site M1 - MW231 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>									
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 231			
		Compound->	SULFATE						
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	--	10/18/2004	31000						
2	267	7/12/2005	36000						
3	94	10/14/2005	31000						
4	196	4/28/2006	34000						
5	171	10/16/2006	41000						
6	185	4/18/2007	33000						
7	169	10/4/2007	38000						
8	209	4/30/2008	32000						
Error Check, Blank If No Errors Detected				n<8	n<8	n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL									
U Statistic =		12.0	n<8	n<8	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level		No Trend	n<8	n<8	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG			Date = 16-Feb-09		Checked By = RL				

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M1 - MW231 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 231		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	30000					
2	5/18/2004	32000					
3	10/18/2004	31000					
4	7/12/2005	36000					
5	10/14/2005	31000					
6	4/28/2006	34000					
7	10/16/2006	41000					
8	4/18/2007	33000					
9	10/4/2007	38000					
10	4/30/2008	32000					
Mann Kendall Statistic (S) =		17.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		33800.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		3521.363	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.104	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW231 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 231		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	30000					
2							
3	10/18/2004	31000					
4							
5	10/14/2005	31000					
6							
7	10/16/2006	41000					
8							
9	10/4/2007	38000					
10							
Mann Kendall Statistic (S) =		7.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		34200.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		4969.909	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.145	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW231 - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 231		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/18/2004	32000					
3							
4	7/12/2005	36000					
5							
6	4/28/2006	34000					
7							
8	4/18/2007	33000					
9							
10	4/30/2008	32000					
Mann Kendall Statistic (S) =		-3.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		33400.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		1673.320	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.050	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		



**Site M1 - MW351 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 351		
		Compound->	SULFATE					
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	- - -	10/19/2004	50					
2	265	7/11/2005	170					
3	94	10/13/2005	59					
4	197	4/28/2006	580					
5	171	10/16/2006	280					
6	186	4/19/2007	280					
7	172	10/8/2007	120					
8	204	4/30/2008	360					
Error Check, Blank If No Errors Detected				n<8	n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			11.0	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M1 - MW351 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 351		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/20/2003	78					
2	5/17/2004	480					
3	10/19/2004	50					
4	7/11/2005	170					
5	10/13/2005	59					
6	4/28/2006	580					
7	10/16/2006	280					
8	4/19/2007	280					
9	10/8/2007	120					
10	4/30/2008	360					
Mann Kendall Statistic (S) =		10.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		245.70	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		184.053	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.749	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW351 - Mann-Kendall Statistical Test Results For Dry Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 351		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/20/2003	78					
2							
3	10/19/2004	50					
4							
5	10/13/2005	59					
6							
7	10/16/2006	280					
8							
9	10/8/2007	120					
10							
Mann Kendall Statistic (S) =		4.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		117.40	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		94.804	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.808	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M1 - MW351 - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 351		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/17/2004	480					
3							
4	7/11/2005	170					
5							
6	4/28/2006	580					
7							
8	4/19/2007	280					
9							
10	4/30/2008	360					
Mann Kendall Statistic (S) =		0.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		374.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		161.493	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.432	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Site M1 - MW640 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>									
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRS No. =		Well Number = MW 640			
		Compound->	SULFATE						
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	- - -	10/19/2004	3000						
2	266	7/12/2005	4300						
3	92	10/12/2005	3100						
4	198	4/28/2006	4400						
5	167	10/12/2006	6100						
6	193	4/23/2007	2900						
7	162	10/2/2007	1500						
8	211	4/30/2008	4100						
Error Check, Blank If No Errors Detected				n<8	n<8	n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL									
U Statistic =			6.0	n<8	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	n<8	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M1 - MW640 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 640		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	2100					
2	5/17/2004	2200					
3	10/19/2004	3000					
4	7/12/2005	4300					
5	10/12/2005	3100					
6	4/28/2006	4400					
7	10/12/2006	6100					
8	4/23/2007	2900					
9	10/2/2007	1500					
10	4/30/2008	4100					
Mann Kendall Statistic (S) =		11.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		3370.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		1367.114	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.406	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW640 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 640		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	2100					
2							
3	10/19/2004	3000					
4							
5	10/12/2005	3100					
6							
7	10/12/2006	6100					
8							
9	10/2/2007	1500					
10							
Mann Kendall Statistic (S) =		2.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		3160.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		1771.440	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.561	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW640 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 640		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/17/2004	2200					
3							
4	7/12/2005	4300					
5							
6	4/28/2006	4400					
7							
8	4/23/2007	2900					
9							
10	4/30/2008	4100					
Mann Kendall Statistic (S) =		2.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		3580.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		978.264	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.273	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		



**Site M1 - MW641 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review		BRRTS No. =		Well Number = MW 641	
		Compound->	SULFATE					
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	--	10/19/2004	880					
2	266	7/12/2005	560					
3	92	10/12/2005	1300					
4	198	4/28/2006	670					
5	167	10/12/2006	880					
6	190	4/20/2007	900					
7	165	10/2/2007	990					
8	211	4/30/2008	940					
Error Check, Blank If No Errors Detected				n<8	n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			11.5	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M1 - MW641 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 641		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	1100					
2	5/18/2004	760					
3	10/19/2004	880					
4	7/12/2005	560					
5	10/12/2005	1300					
6	4/28/2006	670					
7	10/12/2006	880					
8	4/20/2007	900					
9	10/2/2007	990					
10	4/30/2008	940					
Mann Kendall Statistic (S) =		8.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		898.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		210.439	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.234	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW641 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 641		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	1100					
2							
3	10/19/2004	880					
4							
5	10/12/2005	1300					
6							
7	10/12/2006	880					
8							
9	10/2/2007	990					
10							
Mann Kendall Statistic (S) =		-1.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		1030.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		176.352	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.171	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW641 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 641		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/18/2004	760					
3							
4	7/12/2005	560					
5							
6	4/28/2006	670					
7							
8	4/20/2007	900					
9							
10	4/30/2008	940					
Mann Kendall Statistic (S) =		6.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		766.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		158.051	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.206	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Site M1 - MW642 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 642		
		Compound->	SULFATE					
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	--	5/18/2004	600					
2	419	7/11/2005	390					
3	93	10/12/2005	410					
4	198	4/28/2006	400					
5	171	10/16/2006	440					
6	186	4/19/2007	450					
7	172	10/8/2007	450					
8	212	5/7/2008	380					
Error Check, Blank If No Errors Detected				n<8	n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			9.0	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M1 - MW642 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 642		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	640					
2	5/18/2004	600					
3							
4	7/11/2005	390					
5	10/12/2005	410					
6	4/28/2006	400					
7	10/16/2006	440					
8	4/19/2007	450					
9	10/8/2007	450					
10	5/7/2008	380					
Mann Kendall Statistic (S) =		-9.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		9	0	0	0	0	0
Average =		462.22	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		93.512	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.202	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected		n<4	n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW642 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 642		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/22/2003	640					
2							
3	10/12/2005	410					
4							
5	10/16/2006	440					
6							
7	10/8/2007	450					
8							
9							
10							
Mann Kendall Statistic (S) =		0.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		4	0	0	0	0	0
Average =		485.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		104.722	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.216	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M1 - MW642 - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 642		
Compound ->		SULFATE					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/18/2004	600					
3							
4	7/11/2005	390					
5							
6	4/28/2006	400					
7							
8	4/19/2007	450					
9							
10	5/7/2008	380					
Mann Kendall Statistic (S) =		-4.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		444.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		91.269	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.206	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		



**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M6 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 210R						
Mann Whitney U						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT		
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend		
Mann Kendall (Non-Seasonal)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT		
Trend at >80% Confidence Level	DECREASING	DECREASING	No Trend	No Trend		
Trend at >90% Confidence Level	No Trend	DECREASING	No Trend	No Trend		
Mann Kendall ( Dry Season)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT		
Trend at >80% Confidence Level	No Trend	DECREASING	No Trend	No Trend		
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend		
Mann Kendall ( Wet Season)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT		
Trend at >80% Confidence Level	No Trend	No Trend	No Trend	No Trend		
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend		

MW 212R						
Mann Whitney U						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT	3 NT	4 NT
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Mann Kendall (Non-Seasonal)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT	3 NT	4 NT
Trend at >80% Confidence Level	DECREASING	DECREASING	No Trend	No Trend	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	DECREASING	No Trend	No Trend	No Trend	No Trend
Mann Kendall ( Dry Season)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT	3 NT	4 NT
Trend at >80% Confidence Level	No Trend	DECREASING	No Trend	No Trend	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Mann Kendall ( Wet Season)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT	3 NT	4 NT
Trend at >80% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend

MW 307						
Mann Whitney U						
	2 4 6 TNT					
Trend at >90% Confidence Level	No Trend					
Mann Kendall (Non-Seasonal)						
	2 4 6 TNT					
Trend at >80% Confidence Level	No Trend					
Trend at >90% Confidence Level	No Trend					
Mann Kendall ( Dry Season)						
	2 4 6 TNT					
Trend at >80% Confidence Level	No Trend					
Trend at >90% Confidence Level	No Trend					
Mann Kendall ( Wet Season)						
	2 4 6 TNT					
Trend at >80% Confidence Level	No Trend					
Trend at >90% Confidence Level	No Trend					

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M6 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 650			
Mann Whitney U			
	2 4 6 TNT	2 4 DNT	2 6 DNT
Trend at >90% Confidence Level	No Trend	No Trend	No Trend
Mann Kendall (Non-Seasonal)			
	2 4 6 TNT	2 4 DNT	2 6 DNT
Trend at >80% Confidence Level	DECREASING	No Trend	DECREASING
Trend at >90% Confidence Level	DECREASING	No Trend	DECREASING
Mann Kendall ( Dry Season)			
	2 4 6 TNT	2 4 DNT	2 6 DNT
Trend at >80% Confidence Level	DECREASING	INCREASING	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend
Mann Kendall ( Wet Season)			
	2 4 6 TNT	2 4 DNT	2 6 DNT
Trend at >80% Confidence Level	DECREASING	DECREASING	DECREASING
Trend at >90% Confidence Level	DECREASING	No Trend	DECREASING

MW 652						
Mann Whitney U						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Trend at >90% Confidence Level	DECREASING	No Trend	DECREASING	No Trend	No Trend	DECREASING
Mann Kendall (Non-Seasonal)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Trend at >80% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	No Trend	DECREASING
Trend at >90% Confidence Level	DECREASING	No Trend	DECREASING	No Trend	No Trend	No Trend
Mann Kendall ( Dry Season)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Trend at >80% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Mann Kendall ( Wet Season)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Trend at >80% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend

**Site M6 - MW210R - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>						<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>	
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>							
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review		BRRTS No. =		Well Number = MW 210R
		Compound->	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT	
Event	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
Number							
1	- - -	10/22/2004	0	0.52	0	0	
2	265	7/14/2005	0	0	0	0	
3	96	10/18/2005	0	0	0	0	
4	195	5/1/2006	2.6	0	1.1	0	
5	158	10/6/2006	2.9	0.49	2.4	0	
6	200	4/24/2007	1.8	0	1.2	0	
7	169	10/10/2007	0	0.44	0.91	1.3	
8	215	5/12/2008	1	0	0	0	
Error Check, Blank If No Errors Detected							n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL							
U Statistic =			11.5	9.0	12.5	10.0	n<8
Trend ≥ 90 % Confidence Level			No Trend	No Trend	No Trend	No Trend	n<8
Data Entry By : GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M6 - MW210R - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>		
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 210R	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/16/2003	6	1.8	6.3	0.04		
2	5/21/2004	3	0.92	1.5	0.95		
3	10/22/2004	0.015	0.52	0.035	0.04		
4	7/14/2005	0.015	0.015	0.035	0.04		
5	10/18/2005	0.015	0.015	0.035	0.04		
6	5/1/2006	2.6	0.015	1.1	0.04		
7	10/6/2006	2.9	0.49	2.4	0.04		
8	4/24/2007	1.8	0.015	1.2	0.04		
9	10/10/2007	0.015	0.44	0.91	1.3		
10	5/12/2008	1.00	0.015	0.035	0.04		
Mann Kendall Statistic (S) =		-11.0	-21.0	-9.0	1.0	0.0	0.0
Number of Rounds (n) =		10	10	10	10	0	0
Average =		1.74	0.42	1.36	0.26	#DIV/0!	#DIV/0!
Standard Deviation =		1.951	0.576	1.910	0.465	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		1.124	1.358	1.409	1.809	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	No Trend	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	DECREASING	No Trend	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV > 1 NON-STABLE	CV > 1 NON-STABLE	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M6 - MW210R - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>		
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 210R	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/16/2003	6	1.8	6.3	0.04		
2							
3	10/22/2004	0.015	0.52	0.035	0.04		
4							
5	10/18/2005	0.015	0.015	0.035	0.04		
6							
7	10/6/2006	2.9	0.49	2.4	0.04		
8							
9	10/10/2007	0.015	0.44	0.91	1.3		
10							
Mann Kendall Statistic (S) =		-3.0	-6.0	-1.0	4.0	0.0	0.0
Number of Rounds (n) =		5	5	5	5	0	0
Average =		1.79	0.65	1.94	0.29	#DIV/0!	#DIV/0!
Standard Deviation =		2.665	0.673	2.624	0.563	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		1.490	1.031	1.355	1.930	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	DECREASING	No Trend	No Trend	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV > 1 NON-STABLE	NA	CV > 1 NON-STABLE	CV > 1 NON-STABLE	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M6 - MW210R - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>		
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 210R	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/21/2004	3	0.92	1.5	0.95		
3							
4	7/14/2005	0.015	0.015	0.035	0.04		
5							
6	5/1/2006	2.6	0.015	1.1	0.04		
7							
8	4/24/2007	1.8	0.015	1.2	0.04		
9							
10	5/12/2008	1.00	0.015	0.035	0.04		
Mann Kendall Statistic (S) =		-4.0	-4.0	-3.0	-4.0	0.0	0.0
Number of Rounds (n) =		5	5	5	5	0	0
Average =		1.68	0.20	0.77	0.22	#DIV/0!	#DIV/0!
Standard Deviation =		1.208	0.405	0.690	0.407	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.718	2.065	0.892	1.833	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	No Trend	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	CV > 1 NON-STABLE	CV ≤ 1 STABLE	CV > 1 NON-STABLE	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Site M6 - MW212R - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>						<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>										
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number =		MW 212R
		Compound->	2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT	3 NT	4 NT		
Event	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
Number										
1	--	10/25/2004	3200	17000	5100	78000	6000	46000		
2	261	7/13/2005	26	490	200	3500	290	1900		
3	97	10/18/2005	1000	17000	3500	81000	4000	47000		
4	195	5/1/2006	260	2800	630	7500	590	5800		
5	158	10/6/2006	880	6300	1800	31000	2600	19000		
6	200	4/24/2007	25	650	250	3300	370	2300		
7	169	10/10/2007	440	3800	1300	19000	1700	12000		
8	212	5/9/2008	460	5700	1000	21000	1300	15000		
Error Check, Blank If No Errors Detected										
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL										
U Statistic =			6.0	7.0	7.0	6.0	7.0	7.0		
Trend ≥ 90 % Confidence Level			No Trend	No Trend	No Trend	No Trend	No Trend	No Trend		
Data Entry By : GBG			Date = 17-Feb-09			Checked By = RL				

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M6 - MW212R - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 212R	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT	3 NT	4 NT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/16/2003	6	1.8	6.3	0.39	0.035	0.0325
2	5/21/2004	3	0.92	1.5	0.95	0.035	1.6
3	10/22/2004	0.014	0.52	0.035	0.39	0.035	0.0325
4	7/14/2005	0.014	0.016	0.035	0.39	0.035	0.0325
5	10/18/2005	0.014	0.016	0.035	0.39	0.035	0.0325
6	5/1/2006	2.6	0.016	1.1	0.39	0.035	0.0325
7	10/6/2006	2.9	0.49	2.4	0.39	0.035	0.0325
8	4/24/2007	1.8	0.016	1.2	0.39	0.035	0.0325
9	10/10/2007	0.014	0.44	0.91	1.3	0.035	0.0325
10	5/12/2008	1	0.016	0.035	0.39	0.035	0.0325
Mann Kendall Statistic (S) =		-11.0	-21.0	-9.0	1.0	0.0	-7.0
Number of Rounds (n) =		10	10	10	10	10	10
Average =		1.74	0.43	1.36	0.54	0.04	0.19
Standard Deviation =		1.952	0.576	1.910	0.321	0.000	0.496
Coefficient of Variation(CV)=		1.125	1.355	1.409	0.597	0.000	2.619
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	No Trend	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	DECREASING	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV > 1 NON-STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV > 1 NON-STABLE
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		



**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M6 - MW212R - Mann-Kendall Statistical Test Results For Dry Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 212R	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT	3 NT	4 NT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/16/2003	6	1.8	6.3	0.39	0.035	0.0325
2							
3	10/22/2004	0.014	0.52	0.035	0.39	0.035	0.0325
4							
5	10/18/2005	0.014	0.016	0.035	0.39	0.035	0.0325
6							
7	10/6/2006	2.9	0.49	2.4	0.39	0.035	0.0325
8							
9	10/10/2007	0.014	0.44	0.91	1.3	0.035	0.0325
10							
Mann Kendall Statistic (S) =		-3.0	-6.0	-1.0	4.0	0.0	0.0
Number of Rounds (n) =		5	5	5	5	5	5
Average =		1.79	0.65	1.94	0.57	0.04	0.03
Standard Deviation =		2.665	0.673	2.624	0.407	0.000	0.000
Coefficient of Variation(CV)=		1.490	1.030	1.355	0.711	0.000	0.000
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	DECREASING	No Trend	No Trend	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV > 1 NON-STABLE	NA	CV > 1 NON-STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M6 - MW212R - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 212R	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2 NT	3 NT	4 NT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/21/2004	3	0.92	1.5	0.95	0.035	1.6
3							
4	7/14/2005	0.014	0.016	0.035	0.39	0.035	0.0325
5							
6	5/1/2006	2.6	0.016	1.1	0.39	0.035	0.0325
7							
8	4/24/2007	1.8	0.016	1.2	0.39	0.035	0.0325
9							
10	5/12/2008	1	0.016	0.035	0.39	0.035	0.0325
Mann Kendall Statistic (S) =		-4.0	-4.0	-3.0	-4.0	0.0	-4.0
Number of Rounds (n) =		5	5	5	5	5	5
Average =		1.68	0.20	0.77	0.50	0.04	0.35
Standard Deviation =		1.208	0.404	0.690	0.250	0.000	0.701
Coefficient of Variation(CV)=		0.718	2.054	0.892	0.499	0.000	2.026
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	CV > 1 NON-STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV > 1 NON-STABLE
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Site M6 - MW307 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review		BRRTS No. =		Well Number = MW 307	
		Compound->	2 4 6 TNT					
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	- - -	10/20/2004	8.5					
2	268	7/15/2005	6.8					
3	97	10/20/2005	6.9					
4	194	5/2/2006	5.1					
5	161	10/10/2006	6.6					
6	198	4/26/2007	5.2					
7	167	10/10/2007	13					
8	210	5/8/2008	8.1					
Error Check, Blank If No Errors Detected			n<8	n<8	n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =		9.0	n<8	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level		No Trend	n<8	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG			Date = 17-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M6 - MW307 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 307		
Compound ->		2 4 6 TNT					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/16/2003	10					
2	5/20/2004	7.6					
3	10/20/2004	8.5					
4	7/15/2005	6.8					
5	10/20/2005	6.9					
6	5/2/2006	5.1					
7	10/10/2006	6.6					
8	4/26/2007	5.2					
9	10/10/2007	13					
10	5/8/2008	8.1					
Mann Kendall Statistic (S) =		-9.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	0	0	0	0	0
Average =		7.78	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		2.352	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.302	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M6 - MW307 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 307		
Compound ->		2 4 6 TNT					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/16/2003	10					
2							
3	10/20/2004	8.5					
4							
5	10/20/2005	6.9					
6							
7	10/10/2006	6.6					
8							
9	10/10/2007	13					
10							
Mann Kendall Statistic (S) =		-2.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		9.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		2.618	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.291	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M6 - MW307 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
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Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 307	
Compound ->		2 4 6 TNT					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/20/2004	7.6					
3							
4	7/15/2005	6.8					
5							
6	5/2/2006	5.1					
7							
8	4/26/2007	5.2					
9							
10	5/8/2008	8.1					
Mann Kendall Statistic (S) =		0.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		6.56	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		1.369	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.209	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Site M6 - MW650 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>						<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>		
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 650
		Compound->	2 4 6 TNT	2 4 DNT	2 6 DNT			
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	--	10/22/2004	36	99	170			
2	270	7/19/2005	20	110	110			
3	90	10/17/2005	13	81	78			
4	196	5/1/2006	7.6	0.033	6.9			
5	161	10/9/2006	23	170	130			
6	198	4/25/2007	5.5	26	21			
7	162	10/4/2007	8.1	130	86			
8	213	5/5/2008	4.6	0.58	3.7			
Error Check, Blank If No Errors Detected						n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			4.0	10.0	6.0	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	No Trend	No Trend	n<8	n<8	n<8
Data Entry By : GBG			Date = 17-Feb-09			Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M6 - MW650 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRS No. =		Well Number = MW 650		
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/15/2003	26	26	100			
2	5/20/2004	37	36	120			
3	10/22/2004	36	99	170			
4	7/19/2005	20	110	110			
5	10/17/2005	13	81	78			
6	5/1/2006	7.6	0.017	6.9			
7	10/9/2006	23	170	130			
8	4/25/2007	5.5	26	21			
9	10/4/2007	8.1	130	86			
10	5/5/2008	4.6	0.017	3.7			
Mann Kendall Statistic (S) =		-31.0	1.0	-19.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	10	0	0	0
Average =		18.08	67.80	82.56	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		12.224	58.630	55.897	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.676	0.865	0.677	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	DECREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	DECREASING	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV ≤ 1 STABLE	NA	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		



**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M6 - MW650 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>		
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Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 650	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/15/2003	26	26	100		
2						
3	10/22/2004	36	99	170		
4						
5	10/17/2005	13	81	78		
6						
7	10/9/2006	23	170	130		
8						
9	10/4/2007	8.1	130	86		
10						
Mann Kendall Statistic (S) =		-6.0	6.0	-2.0	0.0	0.0
Number of Rounds (n) =		5	5	5	0	0
Average =		21.22	101.20	112.80	#DIV/0!	#DIV/0!
Standard Deviation =		11.002	53.923	37.619	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.518	0.533	0.334	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV ≤ 1 STABLE	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M6 - MW650 - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
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Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 650	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/20/2004	37	36	120			
3							
4	7/19/2005	20	110	110			
5							
6	5/1/2006	7.6	0.017	6.9			
7							
8	4/25/2007	5.5	26	21			
9							
10	5/5/2008	4.6	0.017	3.7			
Mann Kendall Statistic (S) =		-10.0	-5.0	-8.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	5	0	0	0
Average =		14.94	34.41	52.32	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		13.804	45.147	57.696	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.924	1.312	1.103	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	DECREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	DECREASING	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Site M6 - MW652 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>						<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>		
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Site Name =			Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 652
		Compound->	2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	--	10/21/2004	2300	10000	4900	300	190	47000
2	265	7/13/2005	2200	10000	3500	280	0	56000
3	97	10/18/2005	3400	2100	5400	270	130	98000
4	195	5/1/2006	560	2900	970	0	0	11000
5	158	10/6/2006	1300	5100	1800	140	91	23000
6	201	4/24/2007	450	2200	670	60	35	9000
7	169	10/10/2007	1100	4600	1700	160	120	20000
8	210	5/7/2008	710	3800	1300	80	90	17000
Error Check, Blank If No Errors Detected								
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			3.0	7.0	3.0	4.0	8.0	3.0
Trend ≥ 90 % Confidence Level			DECREASING	No Trend	DECREASING	No Trend	No Trend	DECREASING
Data Entry By : GBG			Date = 17-Feb-09			Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M6 - MW652 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)		
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>						
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 652
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT
		Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
Event Number	Sampling Date (most recent last)					2 NT Concentration (leave blank if no data)
1	10/17/2003	1300	4900	2000	130	72
2	5/24/2004	2100	7100	2700	220	130
3	10/21/2004	2300	10000	4900	300	190
4	7/13/2005	2200	10000	3500	280	39
5	10/18/2005	3400	2100	5400	270	130
6	5/1/2006	560	2900	970	39	39
7	10/6/2006	1300	5100	1800	140	91
8	4/24/2007	450	2200	670	60	35
9	10/10/2007	1100	4600	1700	160	120
10	5/7/2008	710	3800	1300	80	90
Mann Kendall Statistic (S) =		-16.0	-12.0	-17.0	-13.0	-9.0
Number of Rounds (n) =		10	10	10	10	10
Average =		1542.00	5270.00	2494.00	167.90	93.60
Standard Deviation =		938.827	2905.187	1623.420	95.112	50.025
Coefficient of Variation(CV)=		0.609	0.551	0.651	0.566	0.534
Error Check, Blank if No Errors Detected						
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	DECREASING	DECREASING	No Trend
Trend ≥ 90% Confidence Level		DECREASING	No Trend	DECREASING	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	NA	CV <= 1 STABLE
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M6 - MW652 - Mann-Kendall Statistical Test Results For Dry Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 652		
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/17/2003	1300	4900	2000	130	72	19000
2							
3	10/21/2004	2300	10000	4900	300	190	47000
4							
5	10/18/2005	3400	2100	5400	270	130	98000
6							
7	10/6/2006	1300	5100	1800	140	91	23000
8							
9	10/10/2007	1100	4600	1700	160	120	20000
10							
Mann Kendall Statistic (S) =		-3.0	-2.0	-4.0	0.0	0.0	0.0
Number of Rounds (n) =		5	5	5	5	5	5
Average =		1880.00	5340.00	3160.00	200.00	120.60	41400.00
Standard Deviation =		970.567	2872.804	1828.387	79.057	45.120	33664.521
Coefficient of Variation(CV)=		0.516	0.538	0.579	0.395	0.374	0.813
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M6 - MW652 - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 652	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/24/2004	2100	7100	2700	220	130	35000
3							
4	7/13/2005	2200	10000	3500	280	39	56000
5							
6	5/1/2006	560	2900	970	39	39	11000
7							
8	4/24/2007	450	2200	670	60	35	9000
9							
10	5/7/2008	710	3800	1300	80	90	17000
Mann Kendall Statistic (S) =		-4.0	-4.0	-4.0	-2.0	-3.0	-4.0
Number of Rounds (n) =		5	5	5	5	5	5
Average =		1204.00	5200.00	1828.00	135.80	66.60	25600.00
Standard Deviation =		869.212	3274.905	1215.718	107.369	42.099	19844.395
Coefficient of Variation(CV)=		0.722	0.630	0.665	0.791	0.632	0.775
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M7 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 124R						
Mann Whitney U						
	2 4 6 TNT	2 4 DNT	RDX			
Trend at >90% Confidence Level	No Trend	No Trend	No Trend			
Mann Kendall (Non-Seasonal)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	RDX	2a 4 6 DNT	4a 2 6 DNT
Trend at >80% Confidence Level	DECREASING	No Trend	No Trend	No Trend	DECREASING	DECREASING
Trend at >90% Confidence Level	DECREASING	No Trend	No Trend	No Trend	DECREASING	DECREASING
Mann Kendall ( Dry Season)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	RDX	2a 4 6 DNT	4a 2 6 DNT
Trend at >80% Confidence Level	DECREASING	No Trend	No Trend	No Trend	DECREASING	DECREASING
Trend at >90% Confidence Level	DECREASING	No Trend	No Trend	No Trend	No Trend	No Trend
Mann Kendall ( Wet Season)						
	2 4 6 TNT	2 4 DNT	2 6 DNT	RDX	2a 4 6 DNT	4a 2 6 DNT
Trend at >80% Confidence Level	DECREASING	INCREASING	No Trend	INCREASING	DECREASING	DECREASING
Trend at >90% Confidence Level	DECREASING	No Trend	No Trend	No Trend	No Trend	No Trend

**Site M7 - MW124R - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>						<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>		
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review			BRRS No. =		Well Number = MW 124R
		Compound->	2 4 6 TNT	2 4 DNT	RDX			
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	--	10/20/2004	74	0	0			
2	271	7/18/2005	86	0	0			
3	95	10/21/2005	41	6.3	4.1			
4	195	5/4/2006	32	0	4.6			
5	160	10/11/2006	69	0	0			
6	201	4/30/2007	58	1.8	5.2			
7	164	10/11/2007	5.5	1.4	2.5			
8	209	5/8/2008	13	1	1.7			
Error Check, Blank If No Errors Detected						n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			4.0	10.5	9.0	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			No Trend	No Trend	No Trend	n<8	n<8	n<8
Data Entry By : GBG			Date = 17-Feb-09			Checked By = RL		



**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M7 - MW124R - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>		
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 124R	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	RDX	2a 4 6 DNT	4a 2 6 DNT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/15/2003	120	29	0.11	6.5	55	66
2	5/18/2004	140	0.16	0.11	0.7	28	32
3	10/20/2004	74	0.16	0.11	0.7	35	37
4	7/18/2005	86	0.16	0.11	0.7	43	46
5	10/21/2005	41	6.3	0.11	4.1	48	48
6	5/4/2006	32	0.16	0.11	4.6	13	16
7	10/11/2006	69	0.16	0.11	0.7	42	39
8	4/30/2007	58	1.8	1.6	5.2	17	17
9	10/11/2007	5.5	1.4	0.11	2.5	22	20
10	5/8/2008	13	1	0.11	1.7	13	13
Mann Kendall Statistic (S) =		-31.0	1.0	5.0	3.0	-20.0	-21.0
Number of Rounds (n) =		10	10	10	10	10	10
Average =		63.85	4.03	0.26	2.74	31.60	33.40
Standard Deviation =		43.631	8.973	0.471	2.193	15.189	17.154
Coefficient of Variation(CV)=		0.683	2.227	1.819	0.800	0.481	0.514
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		DECREASING	No Trend	No Trend	No Trend	DECREASING	DECREASING
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	No Trend	DECREASING	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV > 1 NON-STABLE	CV > 1 NON-STABLE	CV ≤ 1 STABLE	NA	NA
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M7 - MW124R - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>		
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 124R	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	RDX	2a 4 6 DNT	4a 2 6 DNT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/15/2003	120	29	0.11	6.5	55	66
2							
3	10/20/2004	74	0.16	0.11	0.7	35	37
4							
5	10/21/2005	41	6.3	0.11	4.1	48	48
6							
7	10/11/2006	69	0.16	0.11	0.7	42	39
8							
9	10/11/2007	5.5	1.4	0.11	2.5	22	20
10							
Mann Kendall Statistic (S) =		-8.0	-3.0	0.0	-3.0	-6.0	-6.0
Number of Rounds (n) =		5	5	5	5	5	5
Average =		61.90	7.40	0.11	2.90	40.40	42.00
Standard Deviation =		42.398	12.335	0.000	2.462	12.661	16.808
Coefficient of Variation(CV)=		0.685	1.666	0.000	0.849	0.313	0.400
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		DECREASING	No Trend	No Trend	No Trend	DECREASING	DECREASING
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV > 1 NON-STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	NA	NA
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M7 - MW124R - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 124R	
	Compound ->	2 4 6 TNT	2 4 DNT	2 6 DNT	RDX	2a 4 6 DNT	4a 2 6 DNT
	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
Event Number	Sampling Date (most recent last)						
1							
2	5/18/2004	140	0.16	0.11	0.7	28	32
3							
4	7/18/2005	86	0.16	0.11	0.7	43	46
5							
6	5/4/2006	32	0.16	0.11	4.6	13	16
7							
8	4/30/2007	58	1.8	1.6	5.2	17	17
9							
10	5/8/2008	13	1	0.11	1.7	13	13
Mann Kendall Statistic (S) =		-8.0	5.0	2.0	5.0	-5.0	-6.0
Number of Rounds (n) =		5	5	5	5	5	5
Average =		65.80	0.66	0.41	2.58	22.80	24.80
Standard Deviation =		49.761	0.736	0.666	2.167	12.853	13.953
Coefficient of Variation(CV)=		0.756	1.122	1.633	0.840	0.564	0.563
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	No Trend	INCREASING	DECREASING	DECREASING
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV > 1 NON-STABLE	NA	NA	NA
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M8 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

MW 325R	
Mann Whitney U	
<b>2 6 DNT</b>	
Trend at >90% Confidence Level	INSUFFICIENT DATA
Mann Kendall (Non-Seasonal)	
<b>2 6 DNT</b>	
Trend at >80% Confidence Level	No Trend
Trend at >90% Confidence Level	No Trend
Mann Kendall ( Dry Season)	
<b>2 6 DNT</b>	
Trend at >80% Confidence Level	No Trend
Trend at >90% Confidence Level	No Trend
Mann Kendall ( Wet Season)	
<b>2 6 DNT</b>	
Trend at >80% Confidence Level	INSUFFICIENT DATA
Trend at >90% Confidence Level	INSUFFICIENT DATA
MW 330	
Mann Whitney U	
<b>2 6 DNT</b>	
Trend at >90% Confidence Level	<b>INCREASING</b>
Mann Kendall (Non-Seasonal)	
<b>Sulfate</b>	
Trend at >80% Confidence Level	<b>INCREASING</b>
Trend at >90% Confidence Level	No Trend
Mann Kendall ( Dry Season)	
<b>Sulfate</b>	
Trend at >80% Confidence Level	No Trend
Trend at >90% Confidence Level	No Trend
Mann Kendall ( Wet Season)	
<b>Sulfate</b>	
Trend at >80% Confidence Level	No Trend
Trend at >90% Confidence Level	No Trend

**Site M8 - MW325R - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.								
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 325R		
		Compound->	2 6 DNT					
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	---	10/21/2004	2.1					
2	363	10/19/2005	0.94					
3	358	10/12/2006	1.4					
4	370	10/16/2007	1.1					
5	215	5/19/2008	0					
6	---							
7	---							
8	---							
Error Check, Blank If No Errors Detected			n<8	n<8	n<8	n<8	n<8	n<8
Less Than Eight Dates Entered								
U Statistic =			n<8	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level			n<8	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG				Date = 17-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M8 - MW325R - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = 325R		
Compound ->		2 6 DNT					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/13/2003	0.11					
2	10/21/2004	2.1					
3	10/19/2005	0.94					
4	10/12/2006	1.4					
5	10/16/2007	1.1					
6	5/19/2008	0.11					
7							
8							
9							
10							
Mann Kendall Statistic (S) =		-2.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		6	0	0	0	0	0
Average =		0.96	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		0.769	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.801	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected		n<4		n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG		Date = 16-Feb-09		Checked By = RL			

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M8 - MW325R - Mann-Kendall Statistical Test Results For Dry Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = 325R		
Compound ->		2 6 DNT					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/13/2003	0.11					
2	10/21/2004	2.1					
3	10/19/2005	0.94					
4	10/12/2006	1.4					
5	10/16/2007	1.1					
6							
7							
8							
9							
10							
Mann Kendall Statistic (S) =		2.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		1.13	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		0.723	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.640	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level			No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level			CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Site M8 - MW330 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>					<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review		BRRTS No. =		Well Number = MW 330	
		Compound->	2 6 DNT					
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	--	5/21/2004	570					
2	153	10/21/2004	440					
3	363	10/19/2005	340					
4	197	5/4/2006	510					
5	161	10/12/2006	560					
6	200	4/30/2007	570					
7	169	10/16/2007	540					
8	215	5/19/2008	570					
Error Check, Blank If No Errors Detected			n<8	n<8	n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =		13.0	n<8	n<8	n<8	n<8	n<8	n<8
Trend ≥ 90 % Confidence Level		INCREASING	n<8	n<8	n<8	n<8	n<8	n<8
Data Entry By : GBG			Date = 17-Feb-09		Checked By = RL			



**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M8 - MW330 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 330		
Compound ->		Sulfate					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/21/2003	500					
2	5/21/2004	570					
3	10/21/2004	440					
4							
5	10/19/2005	340					
6	5/4/2006	510					
7	10/12/2006	560					
8	4/30/2007	570					
9	10/16/2007	540					
10	5/19/2008	570					
Mann Kendall Statistic (S) =		13.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		9	0	0	0	0	0
Average =		511.11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		77.531	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.152	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M8 - MW330 - Mann-Kendall Statistical Test Results For Dry Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>			<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>				
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 330		
Compound ->		Sulfate					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/21/2003	500					
2							
3	10/21/2004	440					
4							
5	10/19/2005	340					
6							
7	10/12/2006	560					
8							
9	10/16/2007	540					
10							
Mann Kendall Statistic (S) =		2.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		5	0	0	0	0	0
Average =		476.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		88.769	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.186	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M8 - MW330 - Mann-Kendall Statistical Test Results For Wet Season Data**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>				<b>Mann-Kendall Statistical Test</b> <b>Form 4400-215 (2/2001)</b>			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.							
<b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 330	
Compound ->		Sulfate					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	5/21/2004	570					
2							
3	5/4/2006	510					
4							
5	4/30/2007	570					
6							
7	5/19/2008	570					
8							
9							
10							
Mann Kendall Statistic (S) =		1.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		4	0	0	0	0	0
Average =		555.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		30.000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.054	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	n<4	n<4	n<4	n<4	n<4
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M13 - Summary of Mann- Kendall and Mann-Whitney U Trend Analyses**

<b>MW 321</b>						
<b>Mann Whitney U</b>						
	<b>2 4 6 TNT</b>	<b>2 4 DNT</b>	<b>2 6 DNT</b>	<b>2a 4 6 DNT</b>	<b>4a 2 6 DNT</b>	<b>2 NT</b>
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
<b>Mann Kendall (Non-Seasonal)</b>						
	<b>2 4 6 TNT</b>	<b>2 4 DNT</b>	<b>2 6 DNT</b>	<b>2a 4 6 DNT</b>	<b>4a 2 6 DNT</b>	<b>2 NT</b>
Trend at >80% Confidence Level	No Trend	DECREASING	DECREASING	DECREASING	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
<b>Mann Kendall ( Dry Season)</b>						
	<b>2 4 6 TNT</b>	<b>2 4 DNT</b>	<b>2 6 DNT</b>	<b>2a 4 6 DNT</b>	<b>4a 2 6 DNT</b>	<b>2 NT</b>
Trend at >80% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
<b>Mann Kendall ( Wet Season)</b>						
	<b>2 4 6 TNT</b>	<b>2 4 DNT</b>	<b>2 6 DNT</b>	<b>2a 4 6 DNT</b>	<b>4a 2 6 DNT</b>	<b>2 NT</b>
Trend at >80% Confidence Level	No Trend	No Trend	No Trend	DECREASING	No Trend	No Trend
Trend at >90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend

**Site M13 - MW321 - Mann-Whitney U Statistical Test Results**  
**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**

<b>State of Wisconsin</b> <b>Department of Natural Resources</b> <b>Remediation and Redevelopment Program</b>						<b>Mann-Whitney U Statistical Test</b> <b>Form 4400-216 (2/2001)</b>		
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. Provide eight (8) consecutive rounds of data for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the No Trend result will be displayed. Use zeros for non-detect data.</p>								
Site Name =			Joliet Army Ammunition Plant Second 5-Year Review			BRRTS No. =		Well Number = MW 321
		Compound->	2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Event	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
Number								
1	--	10/21/2004	7.4	10	6.1	7.6	14	0
2	274	7/22/2005	14	13	7.3	8	12	0
3	90	10/20/2005	8.7	15	8.3	9.1	12	3.5
4	196	5/4/2006	1.1	0.5	0.071	3.7	3.9	0
5	160	10/11/2006	6.4	22	12	9.7	10	0
6	202	4/30/2007	2.1	4.3	3	4.2	4.5	0
7	169	10/16/2007	5	8.1	5.2	5.9	8.4	0
8	216	5/20/2008	3.8	0.39	0.78	3.3	6	0
Error Check, Blank If No Errors Detected								
DATA IS NEITHER QUARTERLY OR SEMI-ANNUAL								
U Statistic =			4.0	6.0	7.0	6.0	4.0	6.0
Trend ≥ 90 % Confidence Level			No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Data Entry By : GBG			Date = 17-Feb-09			Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit**  
**Joliet Army Ammunition Plant - Wilmington, Illinois**  
**Site M13 - MW321 - Mann-Kendall Statistical Test Results For Non-Seasonally Adjusted Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 321	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/16/2003	0.81	49	21	12	7.6	0.06
2	5/24/2004	0.78	2	3.2	4.5	4.2	0.06
3	10/21/2004	7.4	10	6.1	7.6	14	0.06
4	7/22/2005	14	13	7.3	8	12	0.06
5	10/20/2005	8.7	15	8.3	9.1	12	3.5
6	5/4/2006	1.1	0.5	0.071	3.7	3.9	0.06
7	10/11/2006	6.4	22	12	9.7	10	0.06
8	4/30/2007	2.1	4.3	3	4.2	4.5	0.06
9	10/16/2007	5	8.1	5.2	5.9	8.4	0.06
10	5/20/2008	3.8	0.2	0.78	3.3	6	0.06
Mann Kendall Statistic (S) =		3.0	-13.0	-13.0	-15.0	-8.0	-1.0
Number of Rounds (n) =		10	10	10	10	10	10
Average =		5.01	12.41	6.70	6.80	8.26	0.40
Standard Deviation =		4.254	14.634	6.174	2.935	3.638	1.088
Coefficient of Variation(CV)=		0.849	1.179	0.922	0.432	0.440	2.693
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	DECREASING	DECREASING	DECREASING	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	NA	NA	NA	CV ≤ 1 STABLE	CV > 1 NON-STABLE
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M13 - MW321 - Mann-Kendall Statistical Test Results For Dry Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<p><b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p><b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 321	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/16/2003	0.81	49	21	12	7.6	0.06
2							
3	10/21/2004	7.4	10	6.1	7.6	14	0.06
4							
5	10/20/2005	8.7	15	8.3	9.1	12	3.5
6							
7	10/11/2006	6.4	22	12	9.7	10	0.06
8							
9	10/16/2007	5	8.1	5.2	5.9	8.4	0.06
10							
Mann Kendall Statistic (S) =		0.0	-4.0	-4.0	-4.0	-2.0	0.0
Number of Rounds (n) =		5	5	5	5	5	5
Average =		5.66	20.82	10.52	8.86	10.40	0.75
Standard Deviation =		3.032	16.645	6.418	2.290	2.623	1.538
Coefficient of Variation(CV)=		0.536	0.799	0.610	0.258	0.252	2.057
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV > 1 NON-STABLE
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		

**Second Five Year Review Report - Groundwater Operable Unit  
Joliet Army Ammunition Plant - Wilmington, Illinois  
Site M13 - MW321 - Mann-Kendall Statistical Test Results For Wet Season Data**

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program				Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
<b>Notice:</b> This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used. <b>Instructions:</b> Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.							
Site Name = Joliet Army Ammunition Plant Second 5-Year Review				BRRTS No. =		Well Number = MW 321	
Compound ->		2 4 6 TNT	2 4 DNT	2 6 DNT	2a 4 6 DNT	4a 2 6 DNT	2 NT
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1							
2	5/24/2004	0.78	2	3.2	4.5	4.2	0.06
3							
4	7/22/2005	14	13	7.3	8	12	0.06
5							
6	5/4/2006	1.1	0.5	0.071	3.7	3.9	0.06
7							
8	4/30/2007	2.1	4.3	3	4.2	4.5	0.06
9							
10	5/20/2008	3.8	0.2	0.78	3.3	6	0.06
		Mann Kendall Statistic (S) =	4.0	-4.0	-4.0	-6.0	2.0
		Number of Rounds (n) =	5	5	5	5	5
		Average =	4.36	4.00	2.87	4.74	6.12
		Standard Deviation =	5.518	5.286	2.826	1.880	3.385
		Coefficient of Variation(CV)=	1.267	1.322	0.985	0.397	0.553
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	DECREASING	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV > 1 NON-STABLE	CV > 1 NON-STABLE	CV ≤ 1 STABLE	NA	CV ≤ 1 STABLE	CV ≤ 1 STABLE
Data Entry By = GBG			Date = 16-Feb-09		Checked By = RL		



**Attachment 11**  
**BIOSCREEN Data Inputs and Model Results**

Second Five Year Review  
Groundwater Operable Unit  
Joliet Army Ammunition Plant

Hydrology:		
Hydraulic Conductivity	$1.00 \times 10^{-4}$ cm/s	Site Specific Baildown Test
Hydraulic Gradient	0.0125	Gradient from previous 5-year review
Effective Porosity	33.7%	Average for MFG area from analyses
Dispersion:		
Longitudinal Dispersivity	Calculated by model-based on plume length	Obtained from GOU RD/RA workplan
Transverse Dispersivity	Calculated by model-based on plume length	
Vertical Dispersivity	3.3	
Estimated Plume Length	1,000 ft	Based on the distance from the suspected source area to the monitoring well in which contaminants detected.
Adsorption:	1.0	No retardation used in model
Biodegradation:		
1 <sup>st</sup> order decay coefficient (1,3,5-TNB)	$0.012 \text{ year}^{-1}$	Obtained from bulk natural attenuation analyses
1 <sup>st</sup> order decay coefficient (2,4,6-TNT)	$0.0083 \text{ year}^{-1}$	Obtained from bulk natural attenuation analyses
Instantaneous reaction not used		
General:		
Model Area Length	1,000 ft	Value selected to approximate plume length
Model Area Width	800 ft	Arbitrary value, only affects mass, not transport
Simulation Time	1,000 years	Time chosen to approximate steady-state conditions
Source Data		
Width	400 ft	
Concentration 1,3,5-TNB	4.67 mg/L	Concentration observed at MW131 in July 1998
Concentration 2,4,6-TNT	9.9 mg/L	Concentration observed at MW131 in May 2007
Remedial Goals		
1,3,5-TNB	0.0051 mg/L	
2,4,6-TNT	0.0095 mg/L	

Site L1 MW131 1,3,5-TNB BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

## BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

### Data Input Instructions:

1. Enter value directly....or
  2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
- Variable\* **20** Data used directly in model.  
(Don't enter any data).

JOAPP - Initial  
L1 1,3,5-TNB  
Run Name

### 1. HYDROGEOLOGY

Seepage Velocity*	Vs	3.8	(ft/yr)
or			
Hydraulic Conductivity	K	1.0E-04	(cm/sec)
Hydraulic Gradient	i	0.0125	(ft/ft)
Porosity	n	0.337	(-)

### 2. DISPERSION

Longitudinal Dispersivity*	alpha x	24.5	(ft)
Transverse Dispersivity*	alpha y	2.4	(ft)
Vertical Dispersivity*	alpha z	3.3	(ft)
or			
Estimated Plume Length	Lp	1000	(ft)

### 3. ADSORPTION

Retardation Factor*	R	1.0	(-)
or			
Soil Bulk Density	rho		(kg/l)
Partition Coefficient	Koc		(L/kg)
Fraction Organic Carbon	foc		(-)

### 4. BIODEGRADATION

1st Order Decay Coeff*	lambda	1.2E-2	(per yr)
or			
Solute Half-Life	t-half	58.50	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

### 5. GENERAL

Modeled Area Length*	1400	(ft)
Modeled Area Width*	800	(ft)
Simulation Time*	1000	(yr)

### 6. SOURCE DATA

Source Thickness in Sat.Zone\* **2** (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
400	4.67
0	0
0	0

Source Half-life (see Help):

Infinite	Infinite	(yr)
1st Order		
Soluble Mass	Infinite	(Kg)
In Source NAPL, Soil		

### 7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	4.67	0	140	280	420	560	700	840	980	1120	1260	1400
Dist. from Source (ft)												

### 8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN

CENTERLINE

View Output

RUN ARRAY

View Output

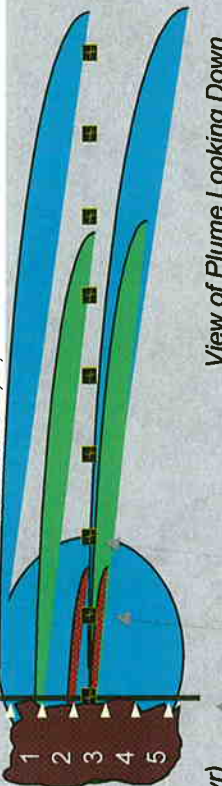
Help

Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



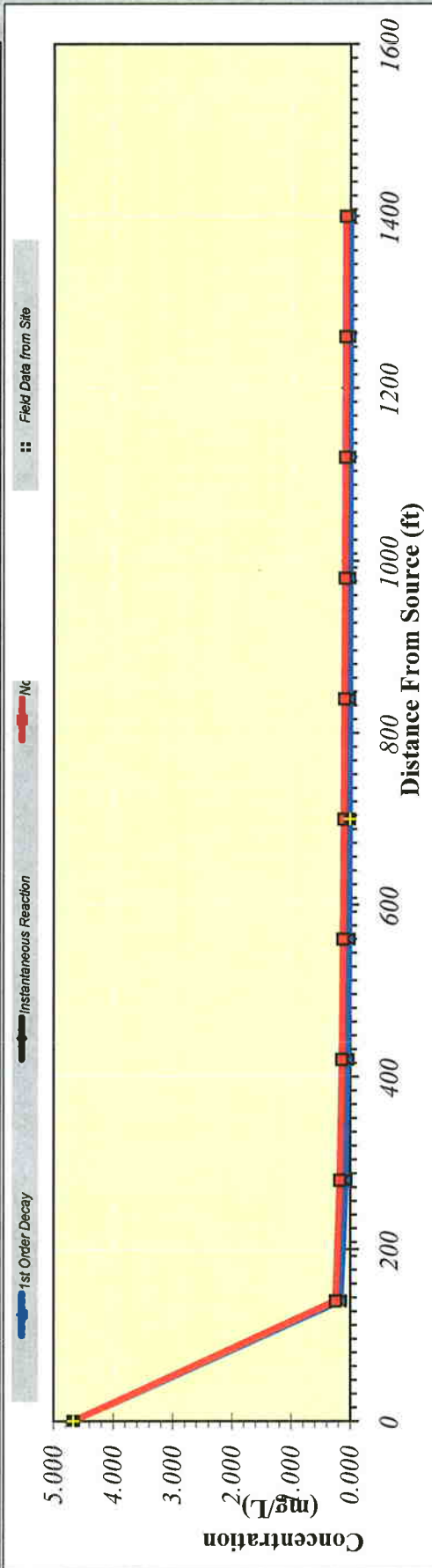
Observed Centerline Concentrations at Monitoring Wells  
If No Data Leave Blank or Enter "0"

Site L1 MW131 1,3,5-TNB BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	140	280	420	560	700	840	980	1120	1260	1400
No Degradation	4.670	0.245	0.173	0.142	0.123	0.110	0.100	0.092	0.086	0.081	0.076
1st Order Decay	4.670	0.164	0.077	0.042	0.024	0.015	0.009	0.005	0.003	0.002	0.001
Inst. Reaction	4.670	0.245	0.173	0.142	0.123	0.110	0.100	0.092	0.086	0.081	0.076
Field Data from Site	4.670					0.005					



Time:

1,000 Years

Calculate Animation

Return to Input

Recalculate This Sheet



Site L1 MW131 1,3,5-TNB BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

Transverse

Distance (ft)

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Distance from Source (ft)

Distance (ft)	0	140	280	420	560	700	840	980	1120	1260	1400
400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
200	4.670	0.122	0.087	0.071	0.061	0.055	0.050	0.046	0.043	0.041	0.039
0	4.670	0.245	0.173	0.142	0.123	0.110	0.100	0.092	0.086	0.081	0.076
-200	4.670	0.122	0.087	0.071	0.061	0.055	0.050	0.046	0.043	0.041	0.039
-400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001

MASS

FLUX

(mg/day)

Can't calculate mass flux when vertical dispersivity not equal to 0

Time: 1000 Years

Target Level: 0.005 mg/L

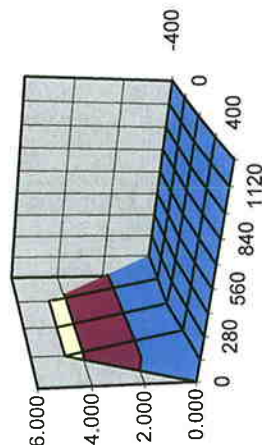
Displayed Model: Inst. Reaction

Model to Display:

No Degradation Model

1st Order Decay Model

Instantaneous Reaction Model



Concentration (mg/L)

Plot All Data

Plot Data > Target

(ft)

(ft)

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation Can't Calc. (Kg)

- Actual Plume Mass Can't Calc. (Kg)

= Plume Mass Removed by Biodeg - (Kg)

Change in Electron Acceptor/Byproduct Masses:

	Nitrate	Iron II	Sulfate	Methane
Oxygen	-	-	-	-

Contam. Mass in Source (t=0 Years) Infinite (Kg)

Contam. Mass in Source Now (t=1000Years) Infinite (Kg)

Current Volume of Groundwater in Plume Can't Calc. (ac-ft)

Flowrate of Water Through Source Zone Can't Calc. (ac-ft/yr)

Mass HELP

Recalculate

Site L1 MW131 2,4,6-TNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

## BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

### Data Input Instructions:

1. Enter value directly...or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

115 or 0.02

- Variable\* 20
- Data used directly in model. (Don't enter any data).

### 1. HYDROGEOLOGY

Seepage Velocity*	Vs	3.8 (ft/yr)
or		
Hydraulic Conductivity	K	1.0E-04 (cm/sec)
Hydraulic Gradient	i	0.0125 (ft/ft)
Porosity	n	0.337 (-)

### 2. DISPERSION

Longitudinal Dispersion*	alpha x	24.5 (ft)
Transverse Dispersion*	alpha y	2.4 (ft)
Vertical Dispersion*	alpha z	3.3 (ft)
or		
Estimated Plume Length	Lp	1000 (ft)

### 3. ADSORPTION

Retardation Factor*	R	1.0 (-)
or		
Soil Bulk Density	rho	(kg/l)
Partition Coefficient	Koc	(L/kg)
Fraction Organic Carbon	foc	(-)

### 4. BIODEGRADATION

1st Order Decay Coeff*	lambda	8.3E-3 (per yr)
or		
Solute Half-Life	t-half	83.90 (year)
or Instantaneous Reaction Model		
Delta Oxygen*	DO	(mg/L)
Delta Nitrate*	NO3	(mg/L)
Observed Ferrous Iron*	Fe2+	(mg/L)
Delta Sulfate*	SO4	(mg/L)
Observed Methane*	CH4	(mg/L)

JOAPP - Initial  
L1 2,4,6-TNT  
Run Name

### 5. GENERAL

Modeled Area Length*	1400 (ft)
Modeled Area Width*	800 (ft)
Simulation Time*	1000 (yr)

### 6. SOURCE DATA

Source Thickness in Sat. Zone\* 2 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
400	9.9
0	0
0	0

Source Half-life (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	Infinite	(Kg)

In Source NAPL, Soil

### 7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	9.9	0	140	280	420	560	700	840	980	1120	1260	1400
Dist. from Source (ft)												

### 8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN

CENTERLINE

View Output

RUN ARRAY

View Output

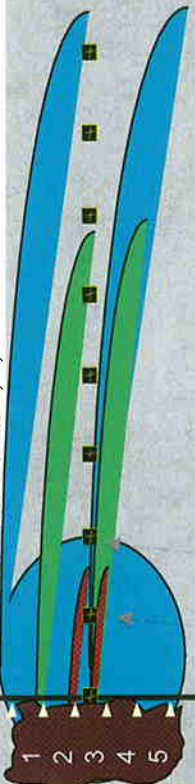
Help

Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

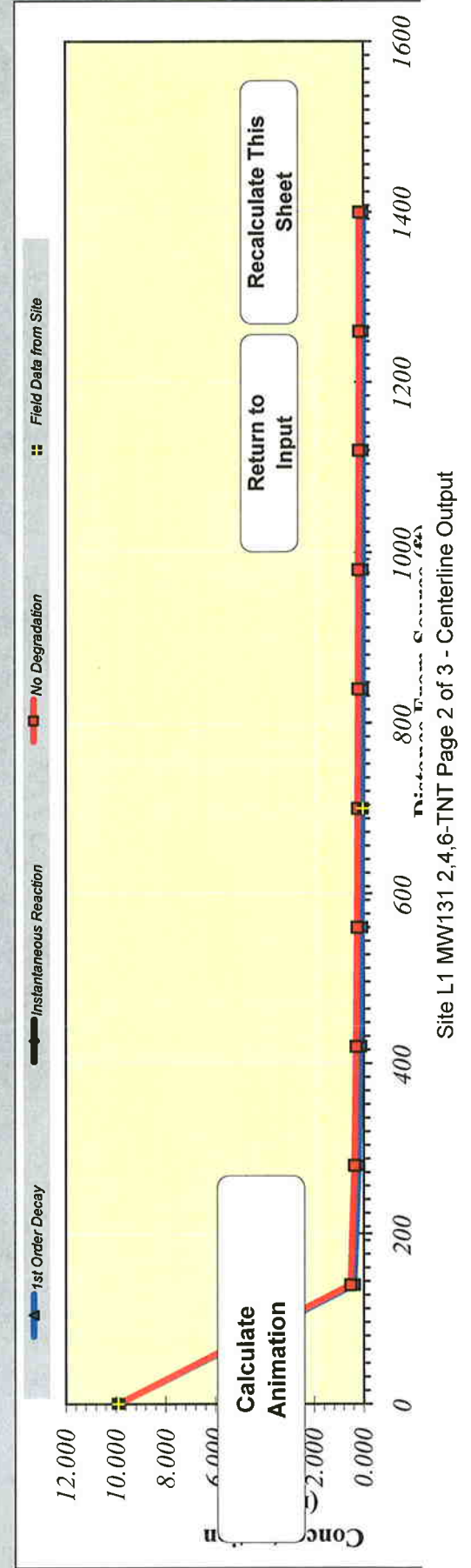
Observed Centerline Concentrations at Monitoring Wells  
If No Data Leave Blank or Enter "0"



Site L1 MW131 2,4,6-TNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	140	280	420	560	700	840	980	1120	1260	1400
No Degradation	9.900	0.519	0.367	0.300	0.260	0.232	0.212	0.196	0.182	0.171	0.162
1st Order Decay	9.900	0.390	0.207	0.127	0.082	0.055	0.038	0.026	0.018	0.013	0.0092
Inst. Reaction	9.900	0.519	0.367	0.300	0.260	0.232	0.212	0.196	0.182	0.171	0.162
Field Data from Site	9.900					0.033					



# DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Can't calculate mass flux when vertical dispersivity not equal to 0

### Inst. Reaction

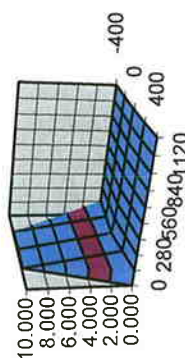
Instantaneous  
Reaction Model

1st Order Decay Model

**Model to Display:**

No Degradation Model

Plume and Source Masses (Order-of-Magnitude Accuracy)



Concentration (mg/L)

(ft)

Plot All Data

Plot Data &gt; Target

Was HELD.

Plume Mass if No Biodegradation: Can't Calc. (Kg)

Actual Plume Mass	Can't Calc. (Kg)

= Plume Mass Removed by Biodeg (Kg)

**Change in Electron Acceptor/Byproduct Masses:**

Oxygen	Nitrate	Iron II	Sulfate	Methane

Oxygen	Nitrate	Iron II	Sulfate	Methane

Contam.	Mass in Source (t=0 Years)	(Kg)
	Infinite	

Contam.	Mass in Source Now (t=1000Years)	(Kg)
Infinite		

Current Volume of Groundwater in Plume Can't Calc. (ac-ft)

Flowrate of Water Through Source Zone	Can't Calc.	(ac-ft/yr)
---------------------------------------	-------------	------------

Recalculate



Second Five Year Review  
Groundwater Operable Unit  
Joliet Army Ammunition Plant

Hydrology:		
Hydraulic Conductivity	$1.6 \times 10^{-3}$ cm/s	Site Specific Baildown Test
Hydraulic Gradient	0.0208	Gradient from previous 5-year review
Effective Porosity	33.7%	Average for MFG area from analyses
Dispersion:		
Longitudinal Dispersivity	Calculated by model-based on plume length	Obtained from GOU RD/RA workplan
Transverse Dispersivity	Calculated by model-based on plume length	
Vertical Dispersivity	3.3	
Estimated Plume Length	1,000 ft	Based on the distance from the suspected source area to the monitoring well in which contaminants detected.
Adsorption:	1.0	No retardation used in model
Biodegradation:		
1 <sup>st</sup> order decay coefficient (RDX)	$0.21 \text{ year}^{-1}$	Obtained from first order decay rate constant calculated using long term monitoring results.
Instantaneous reaction not used		
General:		
Model Area Length	1,500 ft	Value selected to approximate plume length
Model Area Width	800 ft	Arbitrary value, only affects mass, not transport
Simulation Time	1,000 years	Time chosen to approximate steady-state conditions
Source Data		
Width	100 ft	
Concentration RDX	0.64 mg/L	Concentration observed at MW404 in September 1991
Remedial Goals		
RDX	0.0026 mg/L	

Site L2 MW404 RDX BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

# BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

## Data Input Instructions:

1. Enter value directly....or
  2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
- Variable\* Data used directly in model.  
(Don't enter any data).

JOAPP  
L2, MW404 - RDX  
Run Name

## 1. HYDROGEOLOGY

Seepage Velocity*	Vs	102.2 (ft/yr)
or		
Hydraulic Conductivity	K	1.6E-03 (cm/sec)
Hydraulic Gradient	i	0.0208 (ft/ft)
Porosity	n	0.337 (-)

## 2. DISPERSION

Longitudinal Dispersion*	alpha x	28.9 (ft)
Transverse Dispersion*	alpha y	2.9 (ft)
Vertical Dispersion*	alpha z	3.3 (ft)
or		
Estimated Plume Length	Lp	1500 (ft)

## 3. ADSORPTION

Retardation Factor*	R	1.0 (-)
or		
Soil Bulk Density	rho	(kg/l)
Partition Coefficient	Koc	(l/kg)
Fraction Organic Carbon	foc	(-)

## 4. BIODEGRADATION

1st Order Decay Coeff*	lambda	2.1E-1 (per yr)
or		
Solute Half-Life	t-half	(year)
or Instantaneous Reaction Model		
Delta Oxygen*	DO	(mg/L)
Delta Nitrate*	NO3	(mg/L)
Observed Ferrous Iron*	Fe2+	(mg/L)
Delta Sulfate*	SO4	(mg/L)
Observed Methane*	CH4	(mg/L)

## 5. GENERAL

Modeled Area Length*	1500 (ft)
Modeled Area Width*	800 (ft)
Simulation Time*	1000 (yr)

## 6. SOURCE DATA

Source Thickness in Sat. Zone\* 2 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
100	0.64
0	0
0	0

## Source Half-life (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	Infinite	(Kg)

In Source NAPL, Soil

## 7. FIELD DATA FOR COMPARISON

Concentration (mg/L)  
Dist. from Source (ft)

0	150	300	450	600	750	900	1050	1200	1350	1500
---	-----	-----	-----	-----	-----	-----	------	------	------	------

## 8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN

CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This Sheet

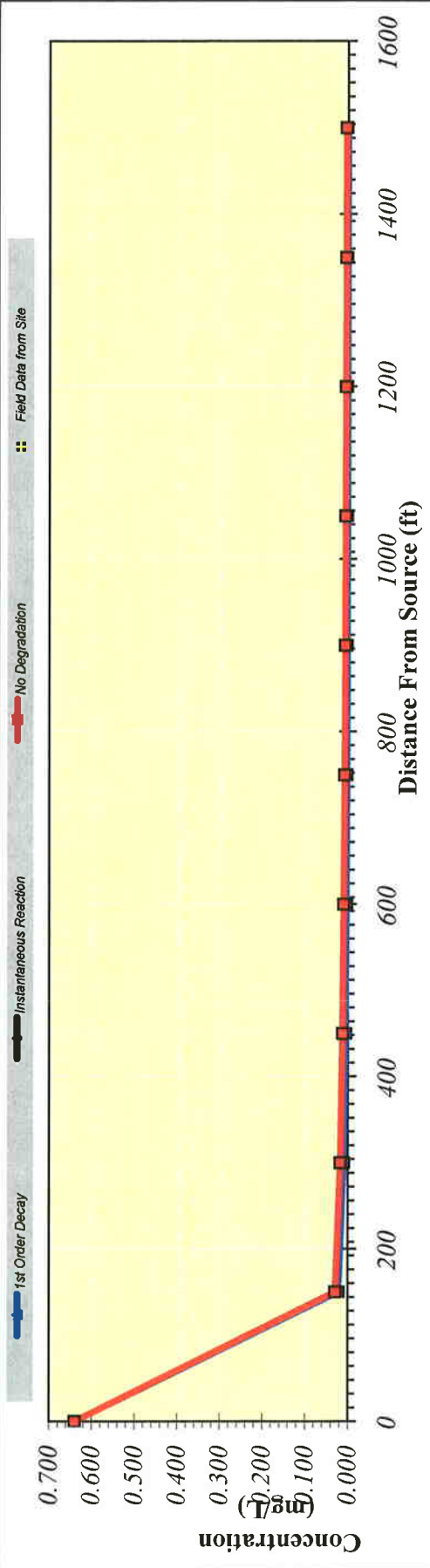
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

Site L2 MW404 RDX BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)											
	0	150	300	450	600	750	900	1050	1200	1350	1500	
	No Degradation	0.640	0.030	0.018	0.013	0.010	0.008	0.007	0.006	0.005	0.005	0.004
	1st Order Decay	0.640	0.022	0.010	0.005	0.003	0.002	0.001	0.001	0.001	0.000	0.000
Inst. Reaction	0.640	0.030	0.018	0.013	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.004
Field Data from Site												



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet



# DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Can't calculate mass flux when vertical dispersivity not equal to 0

**Target Level:**

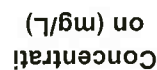
**Displayed Model:**

### Inst. Reaction

### Instantaneous Reaction Model

1st Order Decay Model

**Model to Display:**

No Degradation  
Model[Plot All Data](#)

Plot Data &gt; Target

(ft)

(ft)

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation **Can't Calc. (Kg)**

Can't Calc.

- Actual Plume Mass Can't Calc. (Kg)

Can't Calc.

= Plume Mass Removed by Biodegradation (Kg)

1141

Change in Electron Acceptor/Byproduct Masses:

Methane

Sulfate

Iron I

Oxygen Nitrogen

(Kg)

Contam. Mass in Source (t=0 Years) [

Infinite

Contam. Mass in Source Now (t=1000Years)

Infinite

Current Volume of Groundwater in Plume Can't Calc. (ac-ft)

Can't Calc.

Can't Calc.	(ac-ft/yr)
Can't Calc.	(ac-ft/yr)

**Mass HELP**

Recalculate

Second Five Year Review  
Groundwater Operable Unit  
Joliet Army Ammunition Plant

Hydrology:		
Hydraulic Conductivity	$1.6 \times 10^{-3}$ cm/s	Site Specific Baildown Test
Hydraulic Gradient	0.0243	Gradient from previous 5-year review
Effective Porosity	33.7%	Average for MFG area from analyses
Dispersion:		
Longitudinal Dispersivity	Calculated by model-based on plume length	Obtained from GOU RD/RA workplan
Transverse Dispersivity	Calculated by model-based on plume length	
Vertical Dispersivity	3.3	
Estimated Plume Length	1,000 ft	Based on the distance from the suspected source area to the monitoring well in which contaminants detected.
Adsorption:	1.0	No retardation used in model
Biodegradation:		
1 <sup>st</sup> order decay coefficient (RDX)	$0.11 \text{ year}^{-1}$	Obtained from first order decay rate constant calculated using long term monitoring results.
Instantaneous reaction not used		
General:		
Model Area Length	1,000 ft	Value selected to approximate plume length
Model Area Width	800 ft	Arbitrary value, only affects mass, not transport
Simulation Time	1,000 years	Time chosen to approximate steady-state conditions
Source Data		
Width	100 ft	
Concentration RDX	0.39 mg/L	Concentration observed at MW412 in May 2004
Remedial Goals		
RDX	0.0026 mg/L	

Site L3 MW412 RDX BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

# BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

## 1. HYDROGEOLOGY

Seepage Velocity*	Vs	119.4 ↑ or	(ft/yr)
Hydraulic Conductivity	K	1.6E-03	(cm/sec)
Hydraulic Gradient	i	0.0243	(ft/ft)
Porosity	n	0.337	(-)

## 2. DISPERSION

Longitudinal Dispersion*	alpha x	24.5	(ft)
Transverse Dispersion*	alpha y	2.4	(ft)
Vertical Dispersion*	alpha z	3.3	(ft)
Estimated Plume Length	Lp	1000 ↑ or	(ft)

## 3. ADSORPTION

Retardation Factor*	R	1.0 ↑ or	(-)
Soil Bulk Density	rho		(kg/l)
Partition Coefficient	Koc		(L/kg)
Fraction Organic Carbon	foc		(-)

## 4. BIODEGRADATION

1st Order Decay Coeff*	lambda	1.1E-1 ↑ or	(per yr)
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

## Data Input Instructions:

1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable\* 20  
Data used directly in model.  
Value calculated by model.  
(Don't enter any data).

JOAPP  
L3 MW412 - RDX  
Run Name

## 5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	800	(ft)
Simulation Time*	1000	(yr)

## 6. SOURCE DATA

Source Thickness in Sat.Zone\* 2 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
100	0.39
0	0
0	0

## Source Half-life (see Help):

Inst. React.	Infinite	Infinite	(yr)
Soluble Mass	1st Order	Infinite	(Kg)
In Source NAPL, Soil			

## 7. FIELD DATA FOR COMPARISON

Concentration (mg/L)  
Dist. from Source (ft)

## 8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN  
CENTERLINE

View Output

RUN ARRAY

View Output

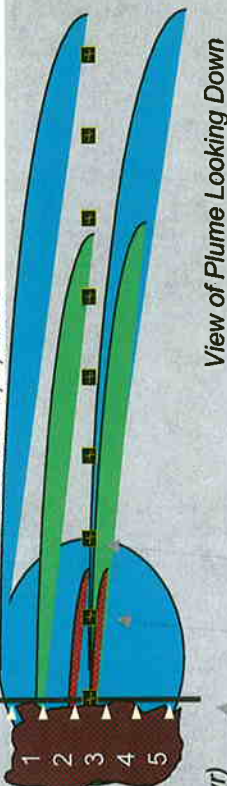
Help

Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



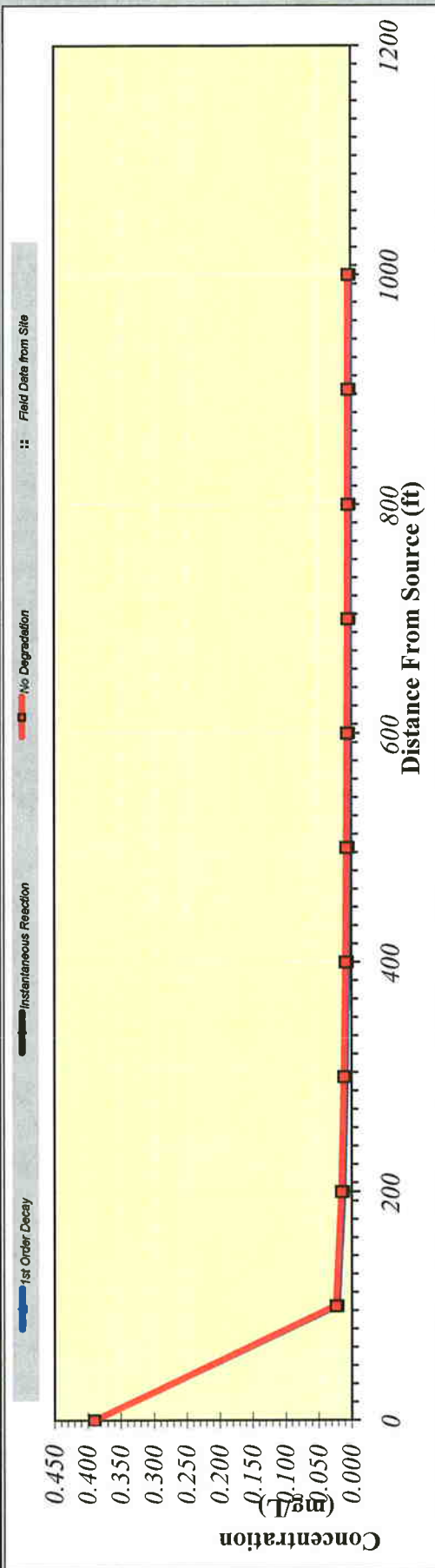
Observed Centerline Concentrations at Monitoring Wells  
If No Data Leave Blank or Enter "0"



Site L3 MW412 RDX BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.390	0.024	0.015	0.011	0.009	0.007	0.006	0.006	0.005	0.004	0.004
1st Order Decay	0.390	0.022	0.013	0.009	0.006	0.005	0.004	0.003	0.0024	0.0020	0.0016
Inst. Reaction	0.390	0.024	0.015	0.011	0.009	0.007	0.006	0.006	0.005	0.004	0.004
Field Data from Site											



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet

Site L3 MW412 RDX BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

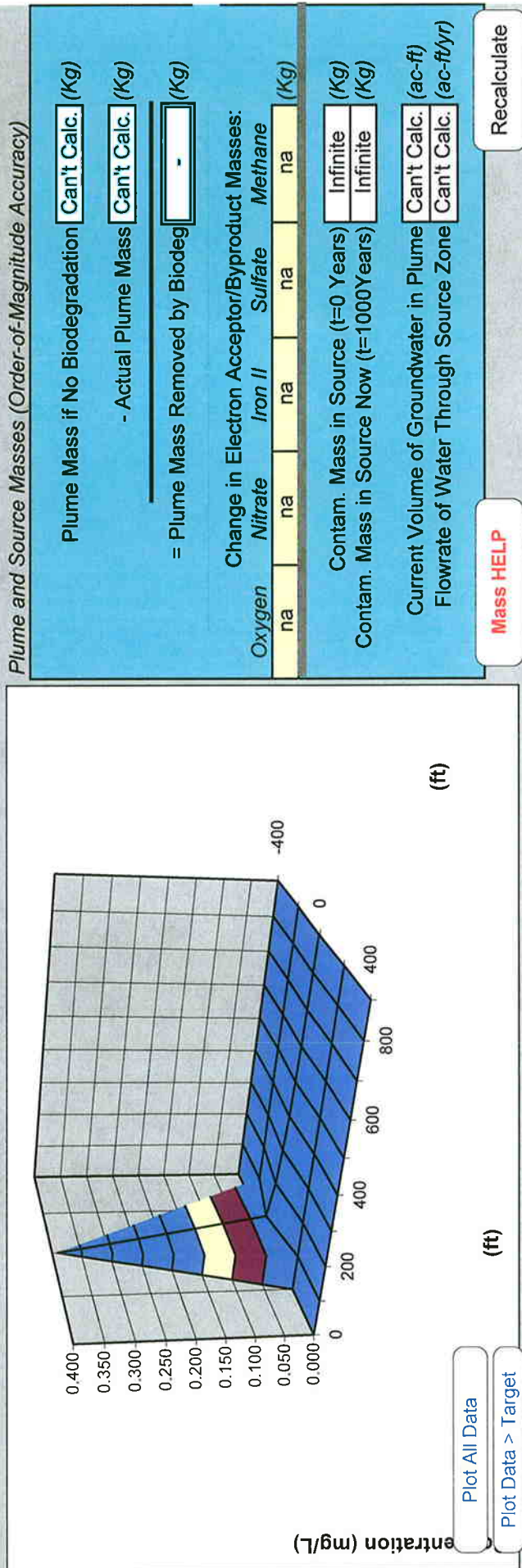
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft)	0	100	200	300	400	500	600	700	800	900	1000	Model to Display:
400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No Degradation Model
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1st Order Decay Model
0	0.390	0.022	0.013	0.009	0.006	0.005	0.004	0.003	0.002	0.002	0.002	Instantaneous Reaction Model
-200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
-400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
MASS FLUX (mg/day)	-	-	-	-	-	-	-	-	-	-	-	

Can't calculate mass flux when vertical dispersivity not equal to 0

Time:  Target Level:  mg/L

Displayed Model:





Second Five Year Review  
Groundwater Operable Unit  
Joliet Army Ammunition Plant

Hydrology:		
Hydraulic Conductivity	$1.9 \times 10^{-3}$ cm/s	Site Specific Baildown Test
Hydraulic Gradient	0.0084	Gradient from previous 5-year review
Effective Porosity	33.7%	Average for MFG area from analyses
Dispersion:		
Longitudinal Dispersivity	Calculated by model-based on plume length	Obtained from GOU RD/RA workplan
Transverse Dispersivity	Calculated by model-based on plume length	
Vertical Dispersivity	1.5	
Estimated Plume Length	5,000 ft	Based on the distance from the suspected source area to the monitoring well in which contaminants detected.
Adsorption:	1.0	No retardation used in model
Biodegradation:		
1 <sup>st</sup> order decay coefficient (RDX)	$0.73 \text{ year}^{-1}$	Obtained from first order decay rate constant calculated using long term monitoring results.
Instantaneous reaction not used		
General:		
Model Area Length	1,500 ft	Value selected to approximate plume length
Model Area Width	800 ft	Arbitrary value, only affects mass, not transport
Simulation Time	1,000 years	Time chosen to approximate steady-state conditions
Source Data		
Width	105 ft	
Concentration RDX	0.84 mg/L	Concentration observed at MW508 in August 1993
Remedial Goals		
RDX	0.0026 mg/L	

Site L14 MW508 RDX BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

# BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

## Data Input Instructions:

1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

115 or 0.02

Variable\*  
20  
Data used directly in model.  
(Don't enter any data).

JOAPP  
L14, MW508 - RDX  
Run Name

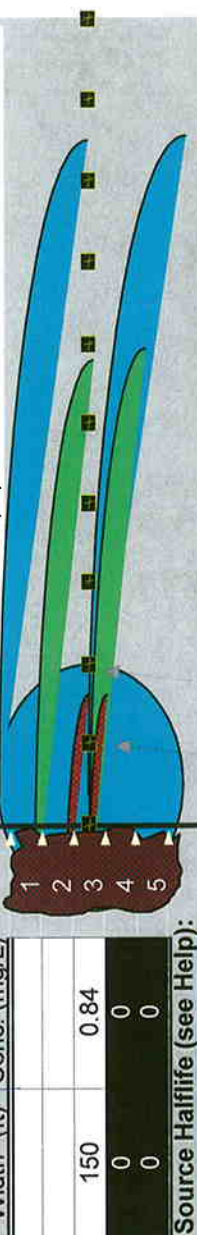
## 5. GENERAL

Modeled Area Length*	1500 (ft)
Modeled Area Width*	800 (ft)
Simulation Time*	1000 (yr)

## 6. SOURCE DATA

Source Thickness in Sat.Zone*	2 (ft)
Source Zones:	
Width* (ft)	Conc. (mg/L)*
150	0.84
0	0
0	0

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells  
If No Data Leave Blank or Enter "0"

## 7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	0	150	300	450	600	750	900	1050	1200	1350	1500
Dist. from Source (ft)											

## 8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN

CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

## 1. HYDROGEOLOGY

Seepage Velocity*	49.0 (ft/yr)
or	
Hydraulic Conductivity	1.9E-03 (cm/sec)
Hydraulic Gradient	0.0084 (ft/ft)
Porosity	0.337 (-)

## 2. DISPERSION

Longitudinal Dispersivity*	44.5 (ft)
Transverse Dispersivity*	4.5 (ft)
Vertical Dispersivity*	1.5 (ft)
or	
Estimated Plume Length	5000 (ft)

## 3. ADSORPTION

Retardation Factor*	1.0 (-)
or	
Soil Bulk Density	(kg/l)
Partition Coefficient	(L/kg)
Fraction Organic Carbon	(-)

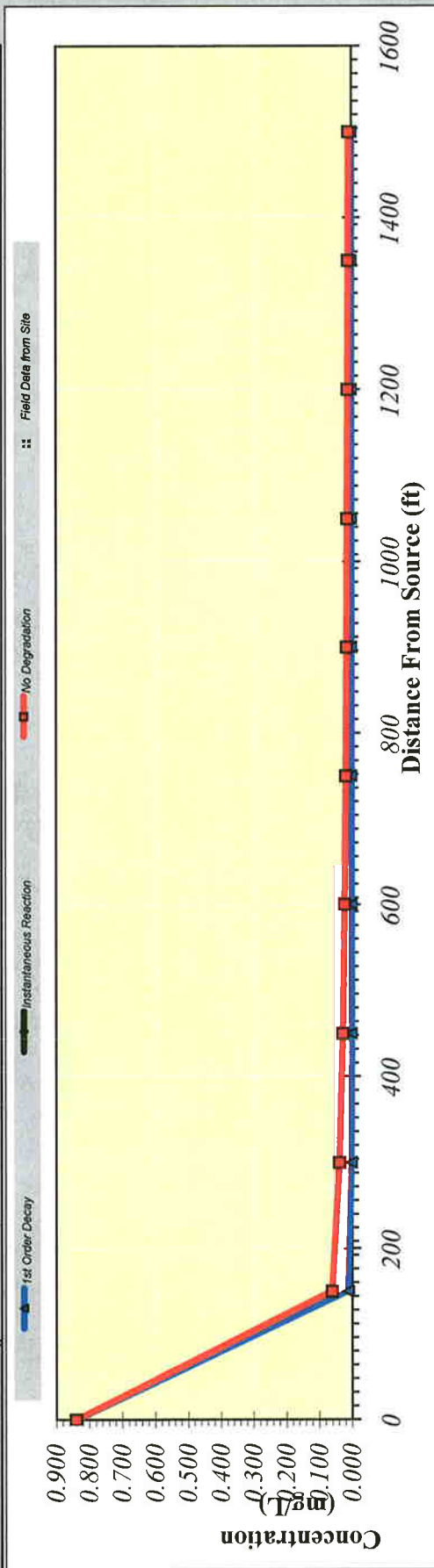
## 4. BIODEGRADATION

1st Order Decay Coeff*	7.3E-1 (per yr)
or	
Solute Half-Life	(year)
or Instantaneous Reaction Model	
Delta Oxygen*	(mg/L)
Delta Nitrate*	(mg/L)
Observed Ferrous Iron*	(mg/L)
Delta Sulfate*	(mg/L)
Observed Methane*	(mg/L)

Site L14 MW508 RDX BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)												
	0	150	300	450	600	750	900	1050	1200	1350	1500		
	No Degradation	0.840	0.061	0.038	0.028	0.022	0.018	0.015	0.013	0.012	0.011	0.010	
	1st Order Decay	0.840	0.013	0.0018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Inst. Reaction		0.840	0.061	0.038	0.028	0.022	0.018	0.015	0.013	0.012	0.011	0.010	
	Field Data from Site												



Calculate Animation

Time:

1,000 Years

Return to Input

Recalculate This Sheet



Site L14 MW508 RDX BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

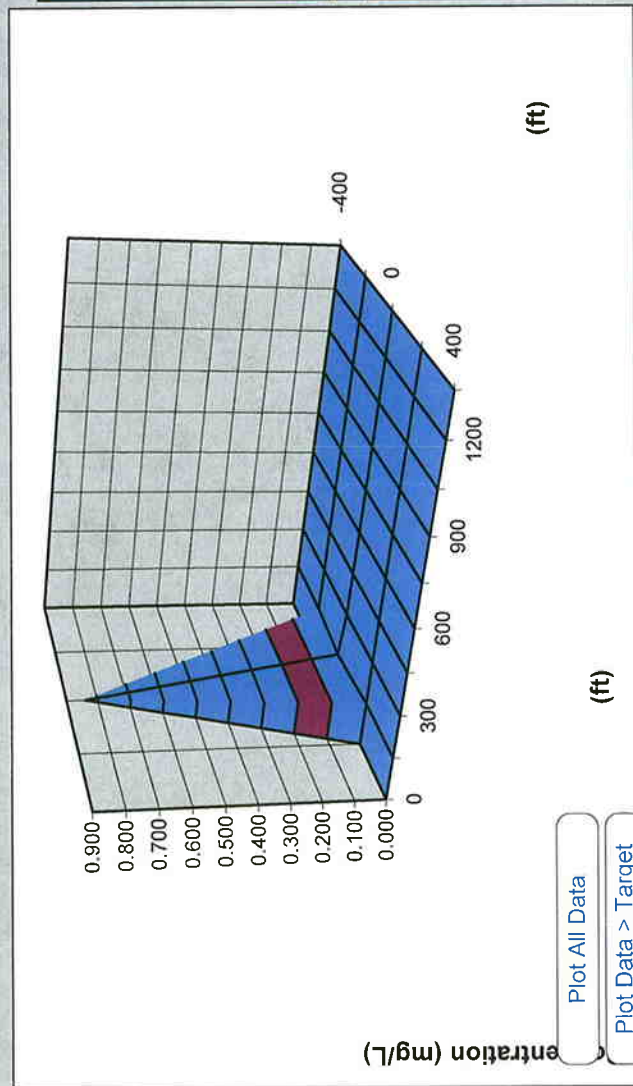
Transverse Distance (ft)	Distance from Source (ft)											Model to Display:
	0	150	300	450	600	750	900	1050	1200	1350	1500	
400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No Degradation Model
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
0	0.840	0.013	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1st Order Decay Model
-200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
-400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Instantaneous Reaction Model
MASS FLUX (mg/day)	-	-	-	-	-	-	-	-	-	-	-	

Can't calculate mass flux when vertical dispersivity not equal to 0

Time: 1000 Years

Target Level: 0.005 mg/L

Displayed Model: 1st Order Decay



Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation Can't Calc. (Kg)  
- Actual Plume Mass Can't Calc. (Kg)  
= Plume Mass Removed by Biodeg - (Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane
na	na	na	na	na

Contam. Mass in Source (t=0 Years) Infinite (Kg)  
Contam. Mass in Source Now (t=1000Years) Infinite (Kg)

Current Volume of Groundwater in Plume Can't Calc. (ac-ft)  
Flowrate of Water Through Source Zone Can't Calc. (ac-ft/yr)

Mass HELP

Recalculate

Second Five Year Review  
Groundwater Operable Unit  
Joliet Army Ammunition Plant

Hydrology:		
Hydraulic Conductivity	$8.9 \times 10^{-4}$ cm/s	Site Specific Baildown Test
Hydraulic Gradient	0.0027	Gradient from previous 5-year review
Effective Porosity	35.67%	Average for MFG area from analyses
Dispersion:		
Longitudinal Dispersivity	Calculated by model-based on plume length	Obtained from GOU RD/RA workplan
Transverse Dispersivity	Calculated by model-based on plume length	
Vertical Dispersivity	15	
Estimated Plume Length	10,000 ft	Based on the distance from the suspected source area to the monitoring well in which contaminants detected.
Adsorption:	1.0	No retardation used in model
Biodegradation:		
1 <sup>st</sup> order decay coefficient (2,4-DNT)	$0.46 \text{ year}^{-1}$	Obtained from bulk natural attenuation analyses
Instantaneous reaction not used		
General:		
Model Area Length	1,300 ft	Distance to nearest downgradient well
Model Area Width	800 ft	Arbitrary value, only affects mass, not transport
Simulation Time	1,000 years	Time chosen to approximate steady-state conditions
Source Data		
Width	25 ft	
Concentration RDX	17.0 mg/L	Concentration observed at MW212R in October 2005
Remedial Goals		
2,4-DNT	0.00042 mg/L	



Site M6 MW212 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

# BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

JOAPP  
M6 MW212 - 2,4-DNT  
Run Name

## Data Input Instructions:

1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable\*  
Value calculated by model.  
(Don't enter any data).

### 1. HYDROGEOLOGY

Seepage Velocity*	Vs	69.8 ↑ or	(ft/yr)
Hydraulic Conductivity	K	8.9E-04 0.027	(cm/sec)
Hydraulic Gradient	i	0.027	(ft/ft)
Porosity	n	0.356	(-)

### 2. DISPERSION

Longitudinal Dispersion*	alpha x	55.4	(ft)
Transverse Dispersion*	alpha y	5.5	(ft)
Vertical Dispersion*	alpha z	15.0	(ft)
Estimated Plume Length	Lp	10000 ↑ or	(ft)

### 3. ADSORPTION

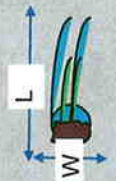
Retardation Factor*	R	1.0 ↑ or	(-)
Soil Bulk Density	rho		(kg/l)
Partition Coefficient	Koc		(L/kg)
Fraction Organic Carbon	foc		(-)

### 4. BIODEGRADATION

1st Order Decay Coeff*	lambda	4.6E-1 ↑ or	(per yr)
Solute Half-Life	t-half	1.50	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

### 5. GENERAL

Modeled Area Length*	1300	(ft)
Modeled Area Width*	800	(ft)
Simulation Time*	1000	(yr)



### 6. SOURCE DATA

Source Thickness in Sat. Zone\* 2 (ft)

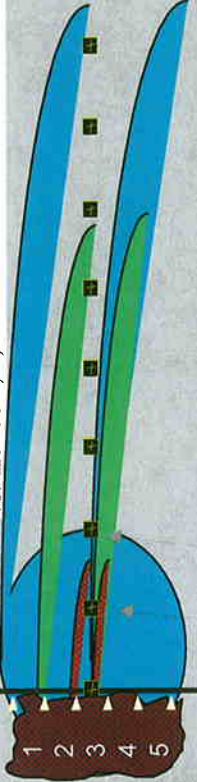
Source Zones:

Width* (ft)	Conc. (mg/L)*
25	17
0	0
0	0

Source Half-life (see Help):

Infinite	Infinite	1st Order
Inst. React.	↑	
Soluble Mass	Infinite	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells  
If No Data Leave Blank or Enter "0"

### 7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	0	130	260	390	520	650	780	910	1040	1170	1300
Dist. from Source (ft)											

### 8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN  
CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This  
Sheet

Paste Example Dataset

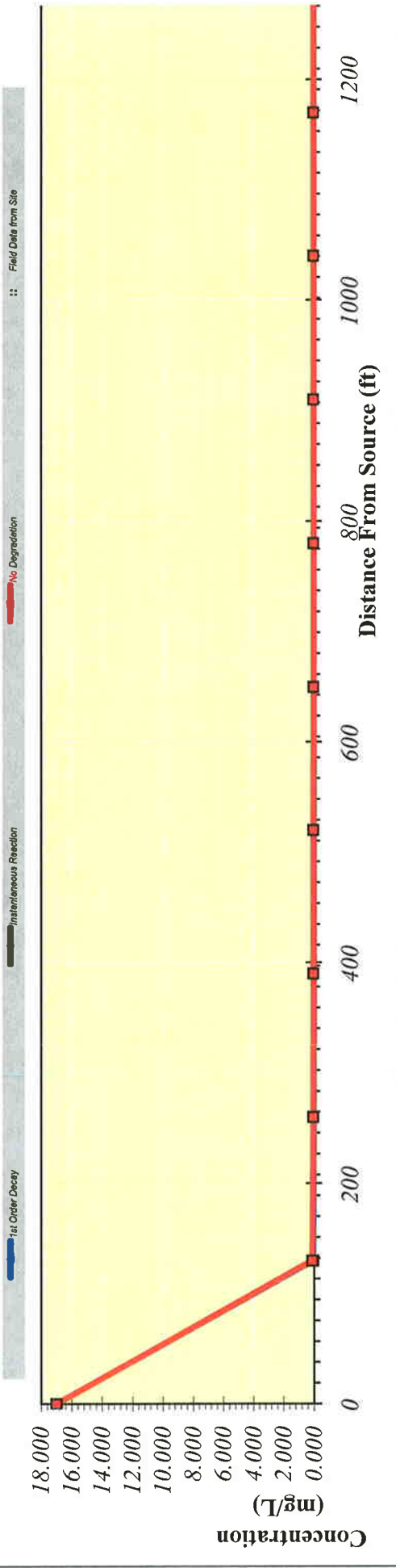
Restore Formulas for Vs,  
Dispersivities, R, lambda, other

Site M6 MW212 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	130	260	390	520	650	780	910	1040	1170	1300
	17.000	0.112	0.057	0.038	0.028	0.023	0.019	0.016	0.014	0.013	0.011
	17.000	0.057	0.015	0.005	0.002	0.00080	0.000	0.000	0.000	0.000	0.000
	17.000	0.112	0.057	0.038	0.028	0.023	0.019	0.016	0.014	0.013	0.011
Field Data from Site											

Field Data from Site



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet



Site M6 MW212 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Distance (ft)		Distance from Source (ft)										Model to Display:
		0	130	260	390	520	650	780	910	1040	1170	
400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No Degradation Model
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
0	17.000	0.057	0.015	0.005	0.002	0.001	0.000	0.000	0.000	0.000	0.000	1st Order Decay Model
-200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
-400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Instantaneous Reaction Model
MASS FLUX (mg/day)	-	-	-	-	-	-	-	-	-	-	-	
Can't calculate mass flux when vertical dispersivity not equal to 0												
Time:		1000 Years		Target Level:		0.005		mg/L		Displayed Model:		1st Order Decay

Can't calculate mass flux when vertical dispersivity not equal to 0

Time:  Years

Target Level:  mg/L

Displayed Model:

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation  (Kg)  
- Actual Plume Mass  (Kg)  
= Plume Mass Removed by Biodeg  (Kg)

Change in Electron Acceptor/Byproduct Masses:

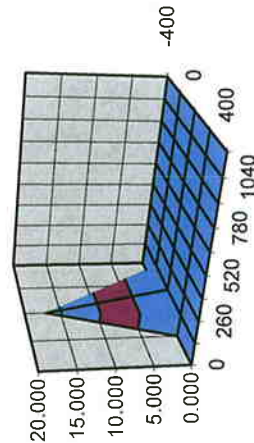
Oxygen	Nitrate	Iron II	Sulfate	Methane
na	na	na	na	na

Contam. Mass in Source (t=0 Years)  (Kg)  
Contam. Mass in Source Now (t=1000Years)  (Kg)

Current Volume of Groundwater in Plume  (ac-ft)  
Flowrate of Water Through Source Zone  (ac-ft/yr)

Mass HELP

Recalculate



concentration (mg/L)

Plot All Data

Plot Data > Target

(ft)

(ft)



Second Five Year Review  
Groundwater Operable Unit  
Joliet Army Ammunition Plant

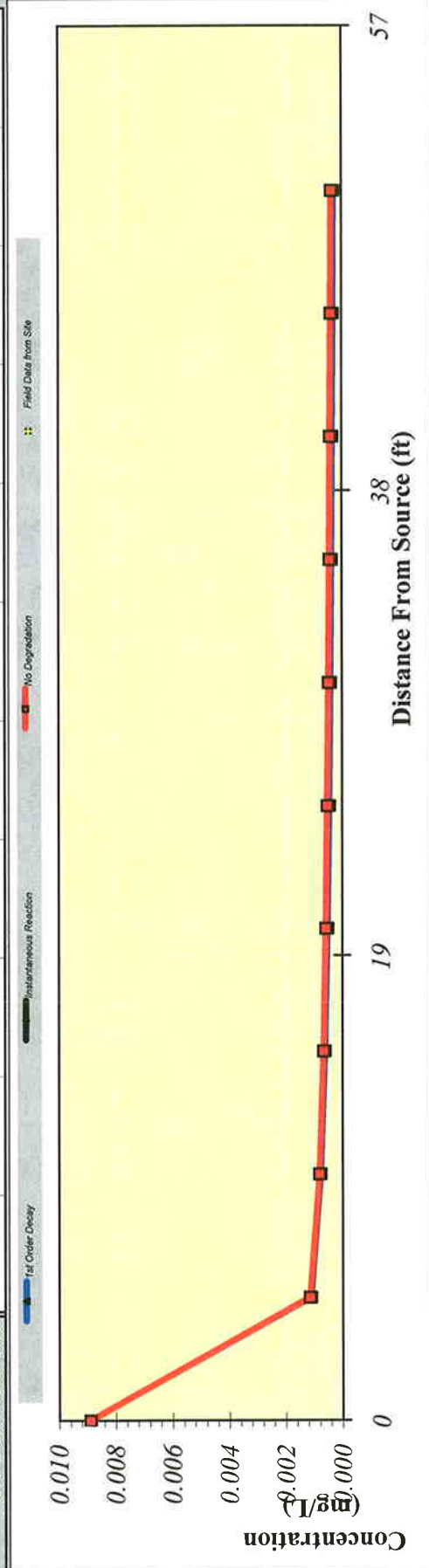
Hydrology:		
Hydraulic Conductivity	$8.9 \times 10^{-4}$ cm/s	Site Specific Baildown Test
Hydraulic Gradient	0.0027	Gradient from previous 5-year review
Effective Porosity	35.67%	Average for MFG area from analyses
Dispersion:		
Longitudinal Dispersivity	Calculated by model-based on plume length	Obtained from GOU RD/RA workplan
Transverse Dispersivity	Calculated by model-based on plume length	
Vertical Dispersivity	15	
Estimated Plume Length	50 ft	Based on the distance from the suspected source area to the monitoring well in which contaminants detected.
Adsorption:	1.0	No retardation used in model
Biodegradation:		
1 <sup>st</sup> order decay coefficient (2,4-DNT)	$0.365 \text{ year}^{-1}$	Obtained from first order decay rate constant calculated using long term monitoring results.
Instantaneous reaction not used		
General:		
Model Area Length	50 ft	Value selected to approximate plume length
Model Area Width	800 ft	Arbitrary value, only affects mass, not transport
Simulation Time	1,000 years	Time chosen to approximate steady-state conditions
Source Data		
Width	5,500 ft	
Concentration 2,4-DNT	0.0089 mg/L	Concentration observed at MW315 in November 1999
Remedial Goals		
2,4-DNT	0.00042 mg/L	



Site M6 MW315 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	5	10	15	20	25	30	35	40	45	50
	No Degradation	0.009	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
	1st Order Decay	0.009	0.00113	0.00078	0.00062	0.00052	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.009	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
Field Data from Site											



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet



Site M6 MW315 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft)	0	5	10	15	20	25	30	35	40	45	50	Model to Display:
5500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No Degradation Model
2750	0.009	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1st Order Decay Model
0	0.009	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	Instantaneous Reaction Model
-2750	0.009	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
-5500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
MASS FLUX (mg/day)	-	-	-	-	-	-	-	-	-	-	-	

Can't calculate mass flux when vertical dispersivity not equal to 0

Time:  Target Level:  mg/L Displayed Model:

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation   
 - Actual Plume Mass   
 = Plume Mass Removed by Biodeg

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane
na	na	na	na	na

(Kg)

Contam. Mass in Source (t=0 Years)   
 Contam. Mass in Source Now (t=1000Years)

Current Volume of Groundwater in Plume   
 Flowrate of Water Through Source Zone

Mass HELP Recalculate

concentration (mg/L)

Distance (ft)

Distance (ft)

Plot All Data  
Plot Data > Target

Second Five Year Review  
Groundwater Operable Unit  
Joliet Army Ammunition Plant

Hydrology:		
Hydraulic Conductivity	$8.9 \times 10^{-4}$ cm/s	Site Specific Baildown Test
Hydraulic Gradient	0.0144	Gradient from previous 5-year review
Effective Porosity	35.6%	Average for MFG area from analyses
Dispersion:		
Longitudinal Dispersivity	Calculated by model-based on plume length	Obtained from GOU RD/RA workplan
Transverse Dispersivity	Calculated by model-based on plume length	
Vertical Dispersivity	11.8	
Estimated Plume Length	500 ft	Based on the distance from the suspected source area to the monitoring well in which contaminants detected.
Adsorption:	1.0	No retardation used in model
Biodegradation:		
1 <sup>st</sup> order decay coefficient (2,4-DNT)	$0.11 \text{ year}^{-1}$	Obtained from first order decay rate constant calculated using long term monitoring results.
Instantaneous reaction not used		
General:		
Model Area Length	500 ft	Value selected to approximate plume length
Model Area Width	800 ft	Arbitrary value, only affects mass, not transport
Simulation Time	1,000 years	Time chosen to approximate steady-state conditions
Source Data		
Width	200 ft	
Concentration 2,4-DNT	0.0532 mg/L	Concentration observed at MW124 in May 1981
Remedial Goals		
2,4-DNT	0.00042 mg/L	

Site M7 MW124 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

# BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

JOAPP  
M7 MW124 - 2,4-DNT  
Run Name

## Data Input Instructions:

1. Enter value directly....or
  2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
- Variable\* 20  
Data used directly in model.  
(Don't enter any data).

### 1. HYDROGEOLOGY

Seepage Velocity*	Vs	69.8 ↑ or	(ft/yr)
Hydraulic Conductivity	K	8.9E-04	(cm/sec)
Hydraulic Gradient	i	0.027	(ft/ft)
Porosity	n	0.356	(-)

### 2. DISPERSION

Longitudinal Dispersion*	alpha x	17.9	(ft)
Transverse Dispersion*	alpha y	1.8	(ft)
Vertical Dispersion*	alpha z	11.8	(ft)
Estimated Plume Length	Lp	500 ↑ or	(ft)

### 3. ADSORPTION

Retardation Factor*	R	1.0 ↑ or	(-)
Soil Bulk Density	rho		(kg/l)
Partition Coefficient	Koc		(L/kg)
Fraction Organic Carbon	foc		(-)

### 4. BIODEGRADATION

1st Order Decay Coeff*	lambda	1.1E-1 ↑ or	(per yr)
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

### 5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	800	(ft)
Simulation Time*	1000	(yr)

### 6. SOURCE DATA

Source Thickness in Sat. Zone\* 2 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
200	0.0532
0	0
0	0

### Source Half-life (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	Infinite	(Kg)

In Source NAPL, Soil

### 7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	0	50	100	150	200	250	300	350	400	450	500
Dist. from Source (ft)											

### 8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN  
CENTERLINE

View Output

RUN ARRAY

View Output

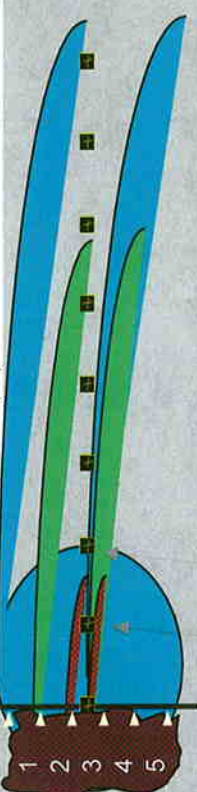
Help

Recalculate This  
Sheet

Paste Example Dataset

Restore Formulas for Vs,  
Dispersivities, R, lambda, other

Vertical Plane Source: Look at Plume Cross-Section  
and Input Concentrations & Widths  
for Zones 1, 2, and 3



View of Plume Looking Down

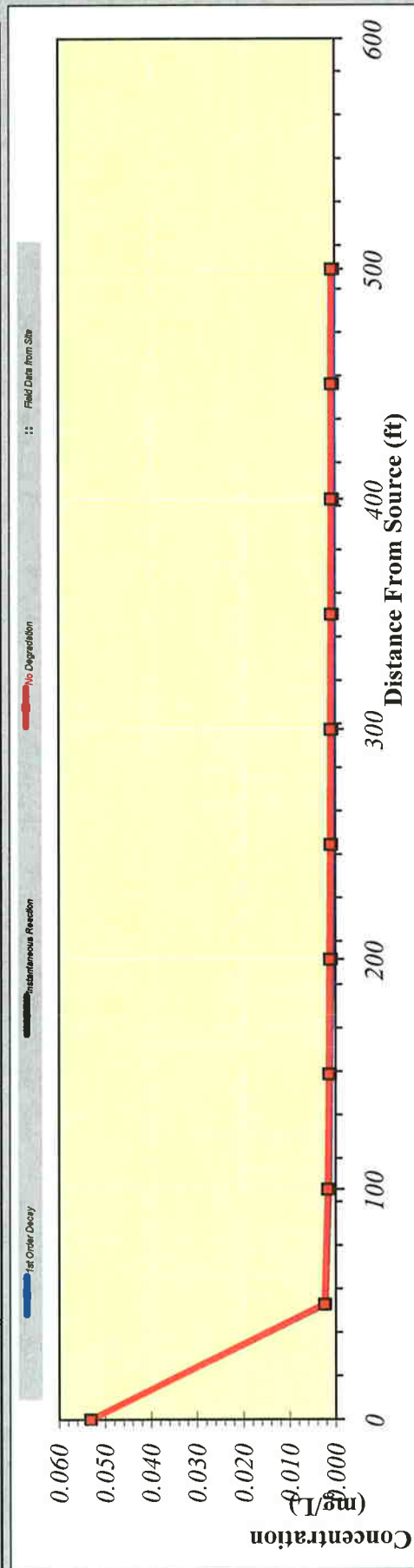
Observed Centerline Concentrations at Monitoring Wells  
If No Data Leave Blank or Enter "0"



Site M7 MW124 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	50	100	150	200	250	300	350	400	450	500
	No Degradation	0.053	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	1st Order Decay	0.053	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.00041	0.00036
Field Data from Site	Inst. Reaction	0.053	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet

Site M7 MW124 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

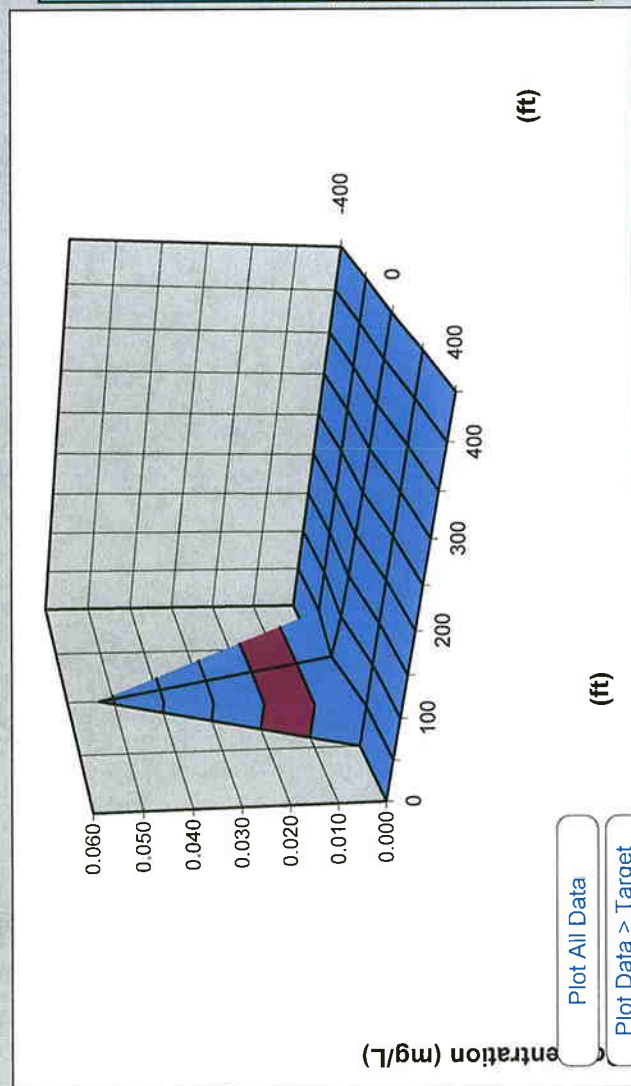
Transverse Distance (ft)	Distance from Source (ft)											Model to Display:
	0	50	100	150	200	250	300	350	400	450	500	
400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	No Degradation Model
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
0	0.053	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	
-200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1st Order Decay Model
-400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
MASS FLUX (mg/day)	-	-	-	-	-	-	-	-	-	-	-	

Can't calculate mass flux when vertical dispersivity not equal to 0

Time:

Target Level:  mg/L

Displayed Model:



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation  (Kg)

- Actual Plume Mass  (Kg)

= Plume Mass Removed by Biodeg  (Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane
na	na	na	na	na

Contam. Mass in Source (t=0 Years)  (Kg)

Contam. Mass in Source Now (t=1000Years)  (Kg)

Current Volume of Groundwater in Plume  (ac-ft)

Flowrate of Water Through Source Zone  (ac-ft/yr)

Mass HELP

Recalculate



Second Five Year Review  
Groundwater Operable Unit  
Joliet Army Ammunition Plant

Hydrology:		
Hydraulic Conductivity	$8.9 \times 10^{-4}$ cm/s	Site Specific Baildown Test
Hydraulic Gradient	0.0144	Gradient from previous 5-year review
Effective Porosity	35.6%	Average for MFG area from analyses
Dispersion:		
Longitudinal Dispersivity	Calculated by model-based on plume length	Obtained from GOU RD/RA workplan
Transverse Dispersivity	Calculated by model-based on plume length	
Vertical Dispersivity	11.8	
Estimated Plume Length	500 ft	Based on the distance from the suspected source area to the monitoring well in which contaminants detected.
Adsorption:	1.0	No retardation used in model
Biodegradation:		
1 <sup>st</sup> order decay coefficient (2,4-DNT)	$0.11 \text{ year}^{-1}$	Obtained from first order decay rate constant calculated using long term monitoring results.
Instantaneous reaction not used		
General:		
Model Area Length	500 ft	Value selected to approximate plume length
Model Area Width	800 ft	Arbitrary value, only affects mass, not transport
Simulation Time	1,000 years	Time chosen to approximate steady-state conditions
Source Data		
Width	200 ft	
Concentration 2,4-DNT	0.0532 mg/L	Concentration observed at MW124 in May 1981
Remedial Goals		
2,4-DNT	0.00042 mg/L	

Site M13 MW321 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

## BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

### Data Input Instructions:

1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

115 or 0.02

Variable\*  
20  
Data used directly in model.  
(Don't enter any data).

### 1. HYDROGEOLOGY

Seepage Velocity*	Vs	1580.1 (ft/yr)
or		
Hydraulic Conductivity	K	8.0E-02 (cm/sec)
Hydraulic Gradient	i	0.0068 (ft/ft)
Porosity	n	0.3562 (-)

### 2. DISPERSION

Longitudinal Dispersion*	alpha x	17.9 (ft)
Transverse Dispersion*	alpha y	1.8 (ft)
Vertical Dispersion*	alpha z	16.0 (ft)
or		
Estimated Plume Length	Lp	500 (ft)

### 3. ADSORPTION

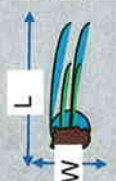
Retardation Factor*	R	1.0 (-)
or		
Soil Bulk Density	rho	(kg/l)
Partition Coefficient	Koc	(L/kg)
Fraction Organic Carbon	foc	(-)

### 4. BIODEGRADATION

1st Order Decay Coeff*	lambda	2.2E-1 (per yr)
or		
Solute Half-Life	t-half	(year)
or Instantaneous Reaction Model		
Delta Oxygen*	DO	(mg/L)
Delta Nitrate*	NO3	(mg/L)
Observed Ferrous Iron*	Fe2+	(mg/L)
Delta Sulfate*	SO4	(mg/L)
Observed Methane*	CH4	(mg/L)

### 5. GENERAL

Modeled Area Length*	2100 (ft)
Modeled Area Width*	800 (ft)
Simulation Time*	1000 (yr)



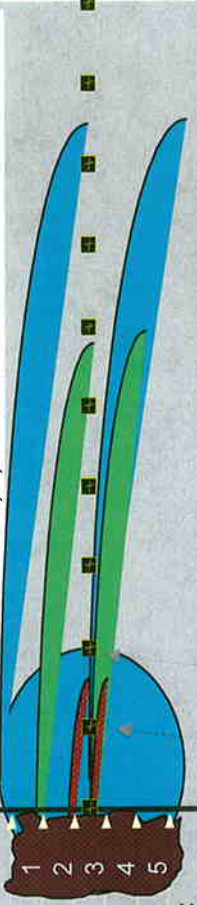
### 6. SOURCE DATA

Source Thickness in Sat. Zone\* 2 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
200	0.12
0	0
0	0

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells  
If No Data Leave Blank or Enter "0"

### 7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	0	210	420	630	840	1050	1260	1470	1680	1890	2100
Dist. from Source (ft)											

### 8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN

CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This Sheet

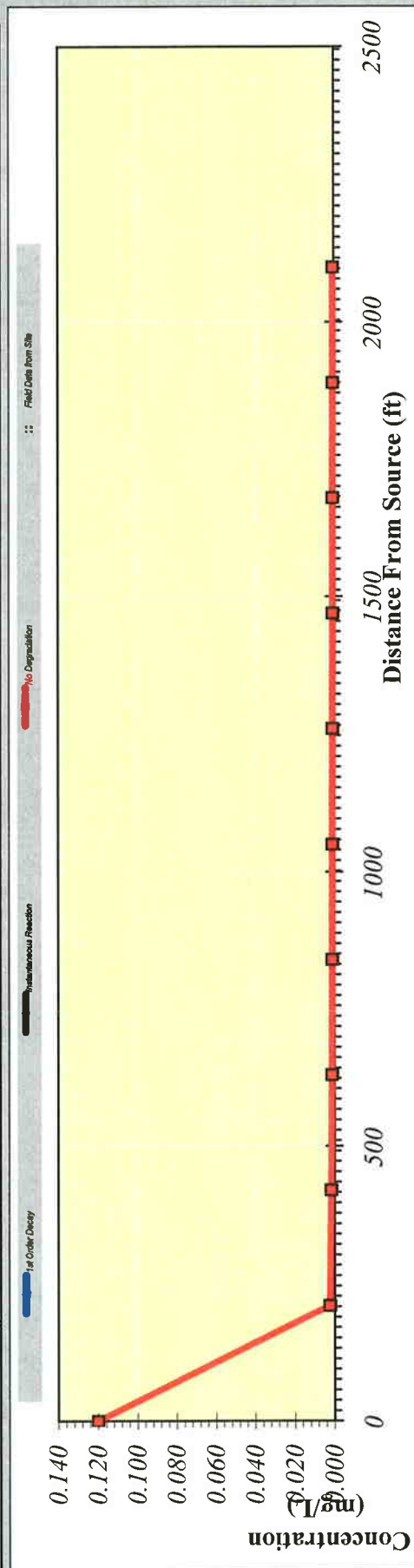
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

Site M13 MW321 2,4-DNT BIOSCREEN Model  
Second Five-Year Review Report  
Joliet Army Ammunition Plant

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	210	420	630	840	1050	1260	1470	1680	1890	2100
	No Degradation	0.120	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	1st Order Decay	0.120	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.00041
Field Data from Site	Inst. Reaction	0.120	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet



# DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Concentration (mg/L)

Time (years)

Distance (ft)

## **ATTACHMENT 12**

### **DOCUMENTATION OF ADHERENCE TO INSTITUTIONAL CONTROLS**

- **ANNUAL REPORTS**
- **FIGURES**
- **REFERENCE DOCUMENTS WITH LAND USE RESTRICTIONS  
(INITIAL DEEDS FOR NON-FEDERAL TRANSFERS)**



## CenterPoint Properties

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1808 Swift Drive  
Oak Brook, Illinois 60523-1501  
630.586.8000 telephone  
630.586.8010 facsimile  
[www.CenterPoint-Prop.com](http://www.CenterPoint-Prop.com)

August 30, 2004

Via FedEx

Arthur M. Holz  
Joliet Army Ammunition Plant  
29401 State Route 53  
Wilmington, IL 60481-8879

**Re: CenterPoint/Deer Run Industrial Park Annual Report**

Dear Art:

Pursuant to Section 9.04 of the August 2, 2000 Memorandum of Agreement ("MOA") between the Army and the Joliet Arsenal Development Authority ("JADA"), JADA committed to "execute an annual report ... outlining the progress on the Redevelopment over the prior year and stat[ing] that, to the best of JADA's knowledge, it has not violated any of the deed restrictions or covenants set forth in the Initial Deed (or Future Deeds if such be the case)." As CenterPoint Properties Trust is the successor to JADA under Section 9.04 of the MOA, I submit this letter as the fourth such Annual Report.

First, to the best of CenterPoint's knowledge, CenterPoint has not violated any of the deed restrictions of covenants set forth in the Initial Deed of the Future Deeds.

Second, there is less activity to discuss this year, as the overwhelming majority of the development work is complete. There are still important tasks to be addressed, as discussed below, but overall the project is unfolding according to plan and we are on track with our projections of launching 1.5 to 2 MM sf of commercial/industrial space per year. Even excluding the BNSF facility, approximately 60% of the industrial park is committed to various commercial and industrial tenants with 2.5 MM sf already occupied. The BNSF's intermodal facility has been open and operating since September 2002, and the BNSF is continuing the process of developing its facility: among other things, they are planning to add another 20,000 linear feet of industrial strip track (two more full tracks).

The Army, the State of Illinois, and CenterPoint share the goal, set forth in Section 2923 of the National Defense Authorization Act for Fiscal Year 1996 and the Joliet Arsenal Development Authority Act (70 ILCS 508/1 et seq.), of making the redevelopment of the Joliet Arsenal into a Brownfields success story. All of the parties involved have cooperated to invest an enormous amount of effort into making the Deer Run Industrial Park a reality, and we deeply appreciate the input and assistance that we have received from all the FFA parties. I look forward to another productive year as we continue to work toward that goal.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Mullen', with a stylized flourish at the end.

Michael M. Mullen  
President & COO

cc: Diana Mally (USEPA)  
Nicole Wilson (IEPA)  
Lloyd Foe (Army Corps)  
James C. Ford (CenterPoint)  
Kevin P. Breslin (Weinberg Richmond)  
Kendy M. Hess (Weinberg Richmond)





**CenterPoint** Properties

---

1808 Swift Drive  
Oak Brook, Illinois 60523-1501  
630.586.8000 telephone  
630.586.8010 facsimile  
[www.CenterPoint-Prop.com](http://www.CenterPoint-Prop.com)

August 25, 2005

By First Class Mail

Arthur M. Holz  
Joliet Army Ammunition Plant  
29401 State Route 53  
Wilmington, IL 60481-8879

**Re: CenterPoint/Deer Run Industrial Park  
Annual Report**

Dear Art:

Pursuant to Section 9.04 of the August 2, 2000 Memorandum of Agreement ("MOA") between the Army and the Joliet Arsenal Development Authority ("JADA"), JADA committed to "execute an annual report ... outlining the progress on the Redevelopment over the prior year and stat[ing] that, to the best of JADA's knowledge, it has not violated any of the deed restrictions or covenants set forth in the Initial Deed (or Future Deeds if such be the case)." As CenterPoint Properties Trust is the successor to JADA under Section 9.04 of the MOA, I submit this letter as the fifth such Annual Report.

First, to the best of CenterPoint's knowledge, CenterPoint has not violated any of the deed restrictions of covenants set forth in the Initial Deed of the Future Deeds.

Second, the overwhelming majority of the infrastructure work is complete, though there are still important tasks to be addressed (discussed below). Overall the project is unfolding according to plan and we are on track with our projections of launching 1.5 to 2 MM sf of commercial/industrial space per year. Even excluding the BNSF facility, approximately 60% of the industrial park is committed to various commercial and industrial tenants with 3.2 MM sf already occupied. The BNSF's "Logistic Park Chicago" intermodal facility has been open and operating since September 2002, and the BNSF is continuing the process of developing its facility.



The Army, the State of Illinois, and CenterPoint share the goal, set forth in Section 2923 of the National Defense Authorization Act for Fiscal Year 1996 and the Joliet Arsenal Development Authority Act (70 ILCS 508/1 et seq.), of making the redevelopment of the Joliet Arsenal into a Brownfields success story. All of the parties involved have cooperated to invest an enormous amount of effort into making the Deer Run Industrial Park a reality, and we deeply appreciate the input and assistance that we have received from all the FFA parties. I look forward to another productive year as we continue to work toward that goal.

Regards,

A handwritten signature in dark ink, appearing to read 'Neil Doyle', with a stylized, flowing script.

Neil Doyle  
Senior Vice President, CenterPoint Properties Trust

cc: Diana Mally (USEPA)  
Nicole Wilson (IEPA)  
Lloyd Foe (Army Corps)  
James C. Ford (CenterPoint Properties Trust)  
Kevin P. Breslin (Weinberg Richmond)  
Kendy M. Hess (Weinberg Richmond)



**CenterPoint** Properties

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August 31, 2006

By First Class Mail

Arthur M. Holz  
Joliet Army Ammunition Plant  
29401 State Route 53  
Wilmington, IL 60481-8879

**Re: CenterPoint/Deer Run Industrial Park  
Annual Report**

Dear Art:

Pursuant to Section 9.04 of the August 2, 2000 Memorandum of Agreement ("MOA") between the Army and the Joliet Arsenal Development Authority ("JADA"), JADA committed to "execute an annual report ... outlining the progress on the Redevelopment over the prior year and stat[ing] that, to the best of JADA's knowledge, it has not violated any of the deed restrictions or covenants set forth in the Initial Deed (or Future Deeds if such be the case)." As CenterPoint Properties Trust is the successor to JADA under Section 9.04 of the MOA, I submit this letter as the fifth such Annual Report.

First, to the best of CenterPoint's knowledge, CenterPoint has not violated any of the deed restrictions or covenants set forth in the Initial Deed of the Future Deeds.

Second, the overwhelming majority of the infrastructure work is complete, though one important task remains to be addressed (discussed below). Overall the project is unfolding according to plan and we are on track with our projections of launching 1.5 to 2 MM sf of commercial/industrial space per year. The industrial park is almost fully committed, with 7 MM sf already occupied. The BNSF's "Logistic Park Chicago" intermodal facility has been open and operating since September 2002, and the BNSF is continuing the process of developing its facility.

The Army, the State of Illinois, and CenterPoint share the goal, set forth in Section 2923 of the National Defense Authorization Act for Fiscal Year 1996 and the Joliet Arsenal Development Authority Act (70 ILCS 508/1 et seq.), of making the redevelopment of the Joliet Arsenal into a Brownfields success story. All of the parties involved have cooperated to invest an enormous amount of effort into making the Deer Run Industrial Park a reality, and we deeply appreciate the input and assistance that we have received from all the FFA parties. I look forward to another productive year as we continue to work toward that goal.

Sincerely,  
**CENTERPOINT INTERMODAL, LLC**



Neil Doyle  
Senior Vice President, Development

cc: Diana Mally (USEPA)  
Nicole Wilson (IEPA)  
Lloyd Foe (Army Corps)  
James C. Ford (CenterPoint)  
Kevin P. Breslin (Richmond Breslin)  
Kendy M. Hess (Richmond Breslin)



## CenterPoint Properties

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August 31, 2007

Arthur M. Holz  
Joliet Army Ammunition Plant  
29401 State Route 53  
Wilmington, IL 60481-8879

*Via: First Class Mail*

**Re: CenterPoint/Deer Run Industrial Park  
Annual Report**

Dear Art:

Pursuant to section 9.04 of the August 2, 2000 Memorandum of Agreement ("MOA") between the Army and the Joliet Arsenal Development Authority ("JADA"), JADA committed to "execute an annual report...outlining the progress on the Redevelopment over the prior year and stating that, to the best of JADA's knowledge, it has not violated any of the deed restrictions or covenants set forth in the Initial Deed or Future Deeds if such be the case. As CenterPoint Properties Trust is the successor to JADA under Section 9.04 of the MOA, I submit this letter as the sixth such Annual Report.


First, to the best of CenterPoint's knowledge, CenterPoint has not violated any of the deed restrictions of the covenants set forth in the Initial Deed of the Future Deeds.

Second, the overwhelming majority of the infrastructure work is complete and the project is unfolding according to plan. In addition to the already constructed 7M SF of industrial warehouse, we are currently under construction on another 2.4M SF anticipated to be complete in late 2008. The BNSF's "Logistic Park Chicago" intermodal facility has been open and operating since September 2002, and has become the highest volume "inland port" in North America.



The Army, the State of Illinois, and CenterPoint share the goal, set forth in Section 2923 of the National Defense Authorization Act for Fiscal Year 1996 and the Joliet Arsenal Development Authority Act (70 ILCS 508/1 et seq), of making redevelopment of the Joliet Arsenal into a Brownfields success story. All of the parties involved have cooperated to invest an enormous amount of effort into making the Deer Run Industrial Park a reality, and we deeply appreciate the input and assistance that we have received from all the FFA parties. I look forward to another productive year as we continue to work toward that goal.

Sincerely,

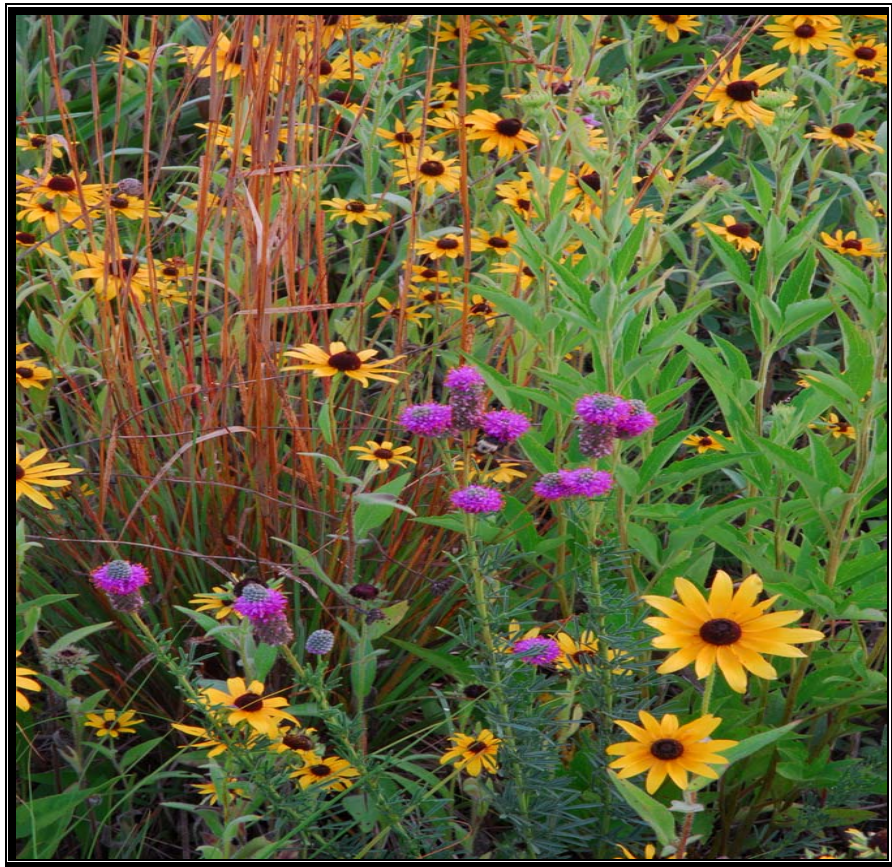


Eric P. Gilbert, P.E.  
Vice President, Development

cc: Diana Mally (USEPA)  
Nicole Wilson (IEPA)  
Lloyd Foe (Army Corps)  
Neil Doyle (CenterPoint Properties)  
Kevin Breslin (Richmond Breslin)

**MONITORING AND EVALUATION REPORT**

**FISCAL YEAR 2007**



Midewin National Tallgrass Prairie

**USDA FOREST SERVICE**

## APPROVAL AND DECLARATION OF INTENT

I have reviewed the 2007 Annual Monitoring and Evaluation Report for the Midewin National Tallgrass Prairie. This report meets the intent of annual monitoring and evaluation outlined in the Prairie Plan (Chapter 6) and complies with regulations contained in 36 CFR 219. The Midewin National Tallgrass Prairie continues to implement the Prairie Plan goals and objectives. Accomplishments to date have addressed the long-term goals in the Prairie Plan.

Monitoring and evaluation have resulted in no significant issues or reasons to change the Midewin Land and Resource Management Plan at this time. However, an amendment to the Prairie Plan will be prepared in fiscal year 2008 based on the need to add a third management area for separate management of newly-acquired Army lands requiring public land use restrictions.

This report is approved:

  
\_\_\_\_\_  
LOGAN LEE,  
Prairie Supervisor

Date: March 31, 2008

## **U.S Army Transfer (T3) Remediated Lands**

The land transfer of 2,640 acres recorded in the Federal Register on September 27, 2005 included 538 acres with land use restrictions. The restrictions include: prevent unrestricted exposure to soils with residual contamination and prevent the development and use of the property for residential, schools, childcare or playgrounds, or industrial uses. In FY2007, no soil or groundwater disturbances occurred on these newly transferred lands, nor have restricted development activities occurred on the 538 acres of remediated lands.

The Forest Service at Midewin agreed to report on the land use for these parcels in the Midewin Annual Monitoring and Evaluation Report. The most appropriate way to track and monitor land uses will be to designate a new Management Area for those lands with restrictions.

### Recommendation:

- Amend the Prairie Plan to designate transferred parcels with land use restrictions and keep track of such parcels and land uses in a Geographic Information System.



Decision Notice  
& Finding of No Significant Impact  
**Land and Resource Management Plan (Prairie Plan)  
Amendment #1 – Establishment of Management Area 3  
and Designation of Utility Corridors into MA 2**  
**USDA Forest Service  
Midewin National Tallgrass Prairie  
Wilmington, Will County, Illinois**

## **Decision and Reasons for the Decision**

### **Background**

The Midewin National Tallgrass Prairie was established in 1996 as the first national tallgrass prairie in the United States under the Illinois Land Conservation Act (ILCA) of 1995. On March 10, 1997, the Department of Defense (Army) transferred the first 15,080 acres of former Joliet Arsenal lands to the USDA Forest Service. The original transfer was composed of “buffer lands” which did not require any environmental cleanup.

As a result of the land transfer the Midewin Prairie Plan was initiated and it was approved in February 2002. In anticipation of future transfers the Prairie Plan states, “Any parcels transferred from the Department of Defense or acquired through donation, exchange or acquisition will be managed in accordance with the Prairie Plan without need for a plan amendment.” (Prairie Plan 4-15)

The Army, in consultation with regulatory agencies, prepared an environmental impact statement for the lands that were believed to be contaminated by Army operations. In 1998, the Army completed the Joliet Army Ammunition Plant Record of Decision (ROD), which established the standards for land cleanup prior to transfer. Some of the Goals/Objectives identified in the 1998 ROD, such as polychlorinated biphenyl (PCB) and landfills, were acceptable to all parties, set in regulations and were final for USDA lands.

Other site-specific Goals/Objectives proposed by the Army on some of the most contaminated lands were disputed and went through additional negotiations and analyses which were later documented in the 2004 ROD. These lands were identified in Section 2916 of the ILCA. They were not mapped as part of the Prairie Plan because their condition was unknown and the Secretary of Agriculture had the authority to decline their transfer if they were not in an acceptable condition.

The 2004 Joliet Army Ammunition Plant ROD documented contamination, established clean-up standards for additional contaminants, and identified by parcel any groundwater and soil restrictions that might affect future land uses. The selected Remedial Goals and Remedial Action Objectives (RG/RAO) were responsive to Midewin’s mission and to protect recreational users, prairie workers, and prairie ecosystems. The objectives do not provide a standard of clean up that allows for those sites to be permanently occupied (i.e., residential standard). The Army

ROD prohibits unrestricted exposure to soils with residual contamination and development and use of the property for residential or industrial uses. Those controls need to be in place permanently.

Groundwater restrictions in Groundwater Management Zones (GMZ) preclude the use or disturbance of groundwater that could cause migration of the contaminated groundwater plumes. In these GMZs, requirements exist to maintain the integrity of groundwater or monitoring wells and require that groundwater above the Maquoketa shale (see EA Appendix B, Glossary) not be used for potable water supply. Groundwater restrictions will remain in place until monitoring indicates that contaminant levels are below the Army ROD thresholds.

Decisions in the 2004 ROD were implemented through the Army's Environmental Condition of Property (ECOP- see EA Appendix B, Glossary). As a condition of the ECOP the Forest Service needs to report to the regulators annually on the status of land use and groundwater restrictions as well as any land use proposals that would be, or were, affected by them.

Additionally, corridors for future utility proposals were not identified in the Midewin Prairie Plan. Agency direction requires the identification of utility corridors in Land and Resource Management Plans--Midewin's Prairie Plan. This amendment will identify the locations available should there be a future request for an expansion or creation of a new utility corridor crossing Midewin.

## Decision

Based upon my review of all alternatives, I have decided to implement Alternative 1, which will:

- apply land use restrictions through prairie-wide direction and create a tracking mechanism for remediated areas of long-term concern through the establishment of Management Area 3,
- clarify the assignment of lands recently transferred to specific management areas; and
- identify 593 acres as utility corridors, and provide direction for them, as a part of Management Area 2.

The most effective way to ensure that the land use and groundwater restrictions required by the ECOP are incorporated in Forest Service decisions is to create a unique management area in the Prairie Plan and provide the monitoring as a part of the Prairie Plan Annual Monitoring and Evaluation Report. We will fulfill the tracking and reporting requirements of the ECOP by mailing this annual report to the Army, USEPA, and Illinois EPA.

MA 3 will provide direction for additional monitoring and reporting on land uses for remediated lands transferred from the Army. MA 3 lands (see Figure 1) will have two designations which carry separate restrictions; Soil Restricted Areas (SRA) and Groundwater Management Zones (GMZ). One four-acre parcel on Midewin's west side will have both designations. Approximately 707 acres of Management Area 1 land will be allotted to MA 3 with this amendment, in addition to 321 acres of transferred land.

With this decision, approximately 862 acres of land that was transferred and not covered by the Prairie Plan--ILCA Section 2916 "most contaminated" lands will be covered by the Plan and assigned to appropriate Management Areas based on the Army ECOP. Approximately 541 acres

are added to MA 1 (Prairie Ecosystem Restoration) with the remainder added to the new MA 3. Future land transfers will be assigned to MA 1 unless restrictions apply to those lands, in which they will be assigned to MA 3.

We have received direction to identify utility corridors as implementation of the Energy Policy Act of 2005 and this decision effectively implements that direction. Certain utility corridors — approximately 593 acres — that are now included in Management Area 1-Prairie Ecosystem Restoration will be designated as Management Area 2-Administrative Sites under Alternative 1 (see Figure 1).

The number of designated corridors has been decreased from what was proposed in the environmental assessment. I feel the revised corridors (along Hoff Road and Midewin's eastern boundary) adequately address the need for corridors for future proposals. Any proposals of utility development or expansion will be limited to these designated Administrative Site Utility Corridors. Companies contacted did not identify a need beyond that already authorized by the Army. Any new proponents would need to work cooperatively with existing utilities to cross the Midewin National Tallgrass Prairie.

### Other Alternatives Considered

In addition to the selected alternative, I considered one other alternative. A comparison of these alternatives can be found in the EA on pages 3-7.

#### Alternative 2 -- No Action

Under the No Action alternative, the 2002 Land and Resource Management Plan would not be amended. MA 3 would not be created and utility corridors would not be designated under MA2.

## Public Involvement

As described in the background, the need for this action arose in late 2005 following the most recent transfer of former Joliet Army Ammunition Plant lands to the USDA Forest Service. The proposal was listed in the Schedule of Proposed Actions beginning in January 2006. The proposal was provided to the public and other agencies for comment during a 30-day scoping period beginning in July 2006. In addition, as part of the public involvement process, Midewin representatives presented the proposal for a Prairie Plan amendment at public meetings and events in 2006. To allow for additional public review prior to making this decision, the environmental assessment was sent to approximately 150 individuals, partners, and federal, state, and local agency contacts in September 2007.

Based on public comment and internal review, no significant issues were identified for this amendment. However, the Forest Service considered public safety and impacts to invasive species; threatened, endangered, and sensitive species; soil and water resources as integral to the analysis of this amendment.

## Finding of No Significant Impact

After considering the environmental effects described in the EA, I have determined that these actions will not have a significant effect on the quality of the human environment considering the

context and intensity of impacts (40 CFR 1508.27). Thus, an environmental impact statement will not be prepared. I base my finding on the following:

1. My finding of no significant environmental effects is not biased by the beneficial effects of the action.
2. There will be no significant effects on public health and safety, because this amendment is for a programmatic LRMP and not a site-specific project proposal (see EA page 17). Also, the designation of a separate management area (MA 3) for remediated lands received from the Army will allow for better tracking and identification of those parcels leading to reduced risk of health and safety issues for prairie workers, volunteers and visitors to Midewin.
3. There will be no significant effects on unique characteristics of the area, because this amendment is for a programmatic LRMP and not a site-specific project proposal (see EA pages 8-17). Midewin has a history of altered conditions, including conversion from native prairie to farmland and the subsequent conversion to the Joliet Arsenal. Several unique areas did survive this conversion and the environmental consequences section of the EA, particularly the Vegetation section, evaluates these areas in light of this Plan Amendment.
4. The effects on the quality of the human environment are not likely to be highly controversial, because there is no known scientific controversy over the impacts of the project (see EA pages 8-17). Recreation and safety were evaluated in the EA and the quality of the visitor experience at Midewin continues to be a high priority.
5. The effects analysis shows the effects are not uncertain, and do not involve unique or unknown risk (see EA pages 8-17). No site-specific activities are to be implemented with this amendment. This amendment creates a third management area, designates land to certain management areas, and identifies corridors for future utility proposals. Any specific activities will have to undergo further analysis in addition to this amendment prior to implementation.
6. The action is not likely to establish a precedent for future actions with significant effects, because this amendment is for a programmatic LRMP and not a site-specific project proposal (see EA pages 8-17). Future amendments will undergo the same analysis procedure as this amendment, and any projects will have to go through a separate analysis project.
7. The cumulative impacts are not significant (see EA pages 8-17). The environmental assessment describes the effects from this amendment in detail. Overall, the impacts are positive and with consideration of past, present and foreseeable future actions will not have a significant cumulative impact from both direct and indirect effects.
8. The action will have no significant adverse effect on districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, because this amendment is for a programmatic LRMP and not a site-specific project proposal (see EA page 17). The action will also not cause loss or destruction of

- significant scientific, cultural, or historical resources, because this amendment is for a programmatic LRMP and not a site-specific project proposal (see EA page 17). Resources of concerns were considered in the identification of corridors for future utility proposals to limit the impact from potential future, site-specific proposals.
9. The action will not adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species act of 1973, because this amendment is for a programmatic LRMP and not a site-specific project proposal (see EA pages 12-13). Threatened, endangered, and sensitive species and habitats were considered in the identification of corridors for future utility proposals to limit the impact from potential future, site-specific proposals. As a result of this evaluation, the number of corridors was reduce from the environmental assessment to this final decision.
  10. The action will not violate Federal, State, and local laws or requirements for the protection of the environment. Applicable laws and regulations were considered in the EA (see EA pages 8-17).

## Findings Required by Other Laws and Regulations

Land and Resource Management Plans are mandated under the authority of the National Forest Management Act. This Prairie Plan amendment was developed under implementing regulations at 36 CFR 219 published in the Federal Register (47 FR 43037) on September 30, 1982 as allowed by the 2004 Interpretive Rule of the 2000 Planning Rule (69 FR 58055). In making this amendment I have considered the best available science, as documented in the EA. I have determined that this action results in a nonsignificant amendment to the Prairie Plan, and thus is within my authority.

The determination that this is a non-significant amendment is made in accordance with the NFMA (16 USC 1604(f)(4)), the 1982 planning rule (36 CFR 219.10(f)), and Forest Service Manual 1926.5. This plan amendment meets the criteria for a non-significant amendment because these changes will not “significantly alter the long-term relationship between levels of multiple-use goals and objectives originally projected...[or] have an important effect on the entire forest plan or affect resources throughout a large portion of the planning area during the planning period (FSM 1926.52).

## Implementation Date

Pursuant to 36 CFR 217.10(a) implementation of this amendment may begin 7 calendar days after publication of the legal notice in the newspaper of record.

## Administrative Review or Appeal Opportunities

As provided by 36 CFR 219.14 (b)(2), this amendment was prepared under the provisions of 1982 planning rule. Therefore, my decision to approve this amendment to the Land and Resource Management Plan for the Midewin National Tallgrass Prairie is subject to administrative review (appeal) pursuant to **36 CFR 217** (November 4, 1993). Because this decision is a nonsignificant amendment to the Plan, a written notice of appeal must be filed with the Reviewing Officer within 45 days of the date that legal notice of this decision is published in *The Herald News*. The

notice of appeal must contain sufficient narrative evidence and argument to show why the decision to amend the plan should be changed or reversed and it must include the content specified at 36 CFR 217. File a notice of appeal under this regulation to:

USDA Forest Service – Eastern Region  
Attn: Regional Forester – Appeal Deciding Officer  
626 East Wisconsin Ave.  
Milwaukee, WI 53202  
OR  
Fax: (414) 944-3963

The office business hours for those submitting hand-delivered appeals are: 7:30am – 4:00 pm Monday through Friday, excluding holidays. Electronic appeals must be submitted in a format such as an email message, plain text (.txt), rich text format (.rtf), or Word (.doc) to:

[appeals-eastern-regional-office@fs.fed.us](mailto:appeals-eastern-regional-office@fs.fed.us)

Any notice of appeal must be fully consistent with 36 CFR 217.9 and include at a minimum:

- A statement that the document is a Notice of Appeal filed pursuant to 36 CFR 217.
- The name, address, and telephone number of the appellant.
- Identification of the decision to which the objection is being made.
- Identification of the document in which the decision is contained, by title and subject.
- Date of the decision and name and title of the Deciding Officer.
- Identification of the specific portion of the decision to which the objection is made.
- The reason for the appeal including issues of fact, law, regulation, or policy.
- Identification of the specific change(s) in the decision that the appellant seeks.

## **Contact**

For additional information concerning this decision or the Forest Service appeal process, contact Mary Honer, NEPA Planner, 30239 South State Route 53, Wilmington, IL 60481 or (815) 423-6370, [mhoner@fs.fed.us](mailto:mhoner@fs.fed.us)

  
\_\_\_\_\_  
LOGAN LEE,  
Prairie Supervisor

June 26, 2008

## Amended Prairie Plan Pages

### *Page 3-6*

#### **3.3. MANAGEMENT AREA 2 – ADMINISTRATIVE AND DEVELOPED RECREATION SITES**

This area includes those portions of Midewin National Tallgrass Prairie that contain facilities developed for administration and recreational use. Administrative sites include all current and proposed sites for the administrative office and work center, including the Hot Shot firefighting facilities, seedbed production areas and parking areas. Developed recreation sites include proposed visitor center and access points, proposed group campground and picnic area, and associated grounds and parking areas.

##### **3.3.1. Desired Condition**

Land, resources, vegetation and facilities contribute to safe, attractive, efficient, and user-friendly settings for administration and visitor uses. Recreational and administrative developments and uses are emphasized, but prairie restoration and natural resources management also occur.

- a) Infrastructure to support designated uses of sites will be constructed, including parking lots, water and sanitation facilities, buildings or shelters, signs, interpretive trails and roadways.
- b) New recreational and administrative facilities will be designed according to the Master Site Plan, the Built Environment Image Guide, the scenic integrity objectives and architectural themes appropriate for Midewin.
- c) Administrative sites and visitor facilities will be designed to minimize impacts on resources, and provide for visitor safety and security.
- d) Noxious weeds and invasive plant species will be controlled or eradicated.
- e) Native seed production will be expanded to increase seed production capacity needed to meet restoration goals.

##### **3.3.2 Desired Condition of Utility Corridors:**

If approved and where compatible, new transmission lines or pipelines will be placed within designated utility corridors rather than creating additional areas or expanding the corridors. Note that for some utility corridors that traverse sensitive resource areas, additional utilities may not be appropriate. Burial of utilities, where appropriate, is required. Compatible multiple uses are encouraged including co-location of communication and electronic towers on existing electric transmission towers. Coordination with utility companies will help to develop appropriate management strategies for each corridor. Utility corridors will also have other uses such as habitat restoration, dispersed recreation, and agricultural activities. Noxious weeds and invasive species will be managed under approved operating plans by utility companies.

**Page 3-8****3.4 MANAGEMENT AREA 3 – SPECIAL MANAGEMENT AREAS**

This management area includes those portions of Midewin National Tallgrass Prairie that are remediated lands transferred from the Department of Defense. Lands with these permanent land use restrictions may not be suitable for any future land conveyances without consultation with Illinois EPA and US EPA and additional cleanup.

Lands in MA 3 will have one (or more than one) of the following designations:

- **Soil Restriction Areas (SRA)** SRAs are areas where soils contaminated with chemicals of concern have been cleaned up to the standards identified in the 2004 ROD or areas where bioremediated soils have been used as backfill. In either case, the sites in SRAs meet a non-residential standard (i.e. no picnic areas or campgrounds) and require land use constraints and tracking.
- **Groundwater Management Zones (GMZ)** GMZs are areas which have contaminated groundwater which is expected to naturally “purify itself” over time. Use constraints will be in place until monitoring indicates that water quality meets the standards identified in the 1998 ROD.

**3.4.1 Desired Condition**

Former Army infrastructure will be removed and the landscape restored to a more natural appearing condition with either native prairie vegetation or agricultural grassland maintained as grassland bird habitat. Activities permitted will be similar to Management Area 1- Prairie Ecosystem Restoration. These prairie land management activities may include: prescribed fire, prairie restoration, wetland restoration, watershed restoration, other habitat restoration as appropriate, noxious and invasive species management, grassland bird habitat management, native seed production, fencerow removal, recreation, and research. Uses prohibited on these areas include removing the soil from SRA-designated lands or disturbing the groundwater or monitoring wells in GMZ-designated lands.

**Table 3.1b: Activities Prescribed or Allowed in Management Area 3**

Activity	Management Area 3 Components	
	SRA	GMZ
Mowing	Prescribed	Prescribed
Agriculture Use	Prescribed	Prescribed
Prescribed Fire	Prescribed	Prescribed
Prairie Restoration	Prescribed	Prescribed
Wetland Restoration	Prescribed	Prescribed
Watershed Restoration	Prescribed	Prescribed
Other Habitat Restoration	Prescribed	Prescribed
Noxious and Invasive Species Management	Prescribed	Prescribed
Grassland Habitat Management	Prescribed	Prescribed
Seed Production	Prescribed	Prescribed
Fencerow Removal	Prescribed	Prescribed
Group Campsites	Not Permitted	Not Permitted



Recreational Hunting/Trapping	Prescribed	Prescribed
Environmental Education	Permitted	Permitted
Dispersed Camping	Not Permitted	Not Permitted
Research	Prescribed	Prescribed
Hiking Trails	Prescribed	Prescribed
Multiple Use Trails	Prescribed	Prescribed
Public Motorized Access	Prohibited	Prohibited
Guided Shuttle or Tours	Permitted	Permitted
Road Decommission	Prescribed	Prescribed
Infrastructure Demolition/Removal and Environmental Cleanup	Prescribed	Prescribed

Permitted: Activity allowed without needing NEPA documentation.

Prescribed: Activity allowed pursuant to NEPA documentation.

***Page 4-14***

**4.2.4. LANDS AND SPECIAL USES**

**4.2.4.1. Special Use Administration  
Standards**

1. Private uses of National Forest System lands will not be granted where such uses can reasonably be accommodated on other lands.
2. New special use requests will be reviewed for compatibility with the Land and Resource Management Plan, Illinois Land Conservation Act, and environmental values, economic feasibility, and social and economic benefits.
3. Upon renewal or transfer of a permit, terminate or bring into conformance existing uses that are not compatible with the Prairie Plan.
4. All new utilities must be placed within designated utility corridors in Management Area 2. (See Management Area 2 - Lands and Special Uses Guidelines for more information.)
5. Previously existing, Army-authorized, utilities that occur outside designated utility corridors will be honored but may be subject to land use constraints to protect natural resources.
6. If Soil Restriction Areas (SRA) are conveyed outside a governmental agency, land must be cleaned up to a residential standard, or conveyed with a deed restriction.

**Page 4-34****4.4.3. LANDS AND SPECIAL USES****4.4.3.1. Livestock Grazing****Guidelines**

1. After sites are developed, prohibit livestock grazing in developed recreation sites.

**4.4.3.2. For New Utilities under Special Uses:****Standards**

1. There will be no utilities added in designated corridors if they are determined to have adverse effects on sensitive resources, including: populations of Threatened, Endangered, and Sensitive plants and animals; cultural resources; native vegetation remnants; and high quality aquatic resources.

**Guidelines**

1. Where technology exists, bury new utility lines within designated corridors. If overhead utilities are necessary, they should be located outside of lands with viewsheds determined to be Concern Level 1 or 2.
2. New utilities that cannot be buried (e.g. radio and cellular transmission towers, high voltage transmission lines and towers etc) should not be placed on Prairie lands, unless all other ownership locations are determined unfeasible.
3. When technically feasible, permitted communication towers should serve multiple purposes (e.g. cellular phone, radio, etc.).
4. Avoid construction of additional communication towers.
5. Avoid tower installation on Prairie lands in the viewshed of a Concern Level 1 or 2 travel way or use area. Use the shortest possible tower in a given location. Consider a series of shorter, strategically placed, non-lighted towers rather than constructing a tall, lighted tower.
6. Use appropriate mitigation measures to reduce visual impacts.

**Page 4-35**

## **4.5. MANAGEMENT AREA 3 – SPECIAL MANAGEMENT AREAS**

### **Standards**

1. **SRA** – Movement of soil from soil restriction areas (SRA) can only be moved within the same parcel, to another soil restriction area, or removed to a landfill permitted to accept restricted soils. Incidental soil movement, including but not limited to soil on equipment, plant salvage and soil sampling, is not subject to this restriction.
2. **GMZ** – Prohibit installation of groundwater production wells, or any other activities that could cause migration of contaminated groundwater, within the boundaries of groundwater management zones (GMZ) defined by the Army.
3. **GMZ** – If groundwater management zones are reduced or eliminated as a result of Army monitoring, the parcel cleared by the Army will revert to MA 1 – Prairie Ecosystem Restoration, without need of an amendment.
4. In areas that are comprised of more than one component of Management Area 3 (i.e. SRA and GMZ in the same area), applicable standards and guidelines will be followed for all component areas.
5. Report on condition of Management Area 3 lands annually in the Monitoring and Evaluation (M&E) Report and send M&E Report to the USEPA – Region 5, Illinois EPA and the US Army.

**Page 6-13**

The following monitoring question would be added to Table 6-1, Chapter 6 (Monitoring and Evaluation Plan) of the Prairie Plan to reflect this amendment.

Monitoring Question	Monitoring Priority	Monitoring Driver	Sampling Unit	Sampling Methods	Scale	Frequency
<b>22. Management Area 3 –Special Areas</b> <b>22.1. Has there been any non-compliance of restrictions for MA 3 lands? If so, describe actions taken to remedy the non-compliance and explain the reasons for the non-compliance.</b>	Great Consequences; Key Issue	Agreement with Army; regulatory agencies	Each site in MA 3	Monitor actual land uses on MA 3 sites	Site	Annually*

\* Each year send a copy of the Midewin Annual Monitoring and Evaluation Report to the USEPA – Region 5; Illinois EPA; and the US Army.

**Figure 1**  
**Midewin National Tallgrass Prairie**

Management Areas  
Amendment 1

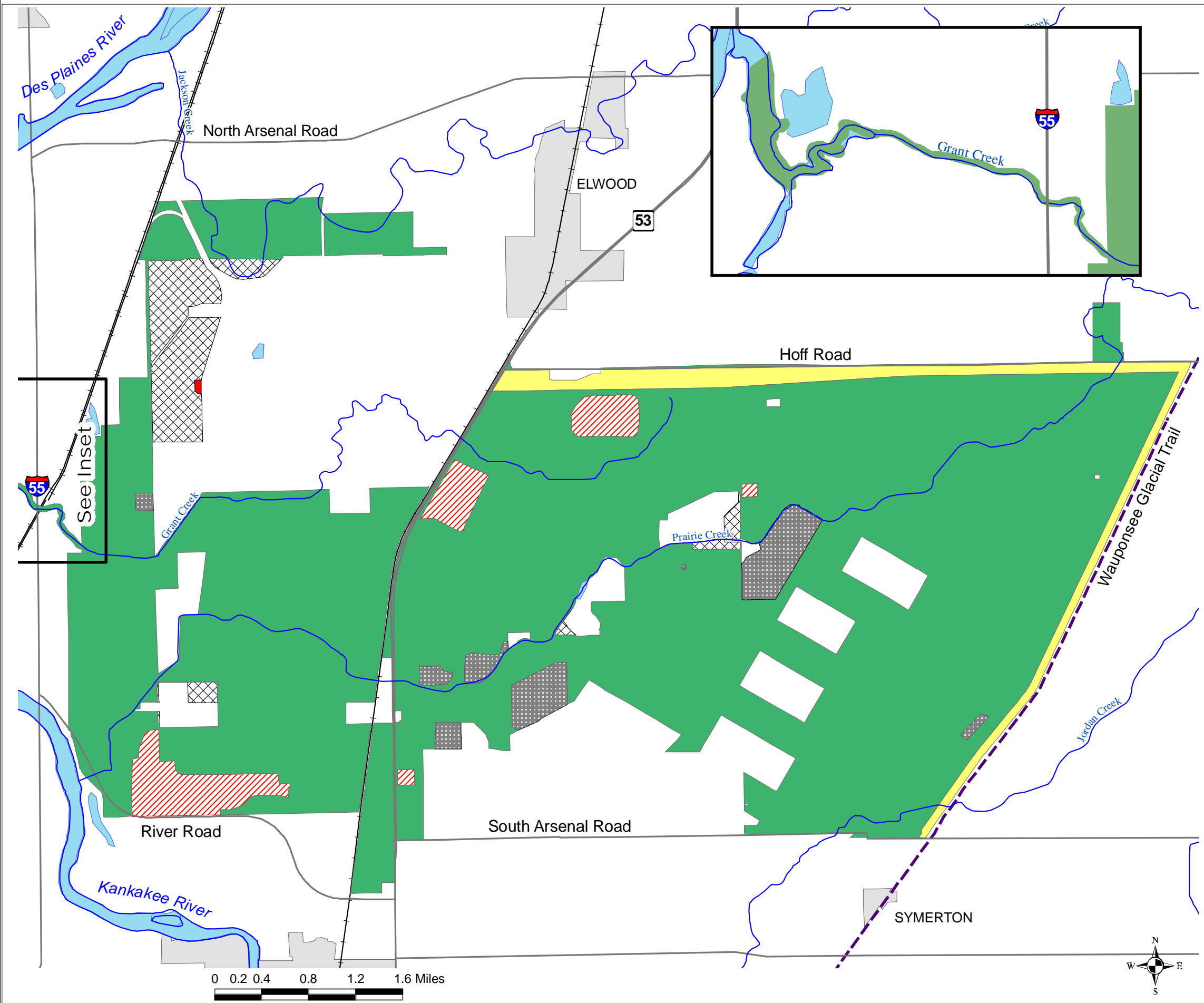
**LEGEND**

- Public Roads
- Management Area 1**
  - Restoration
- Management Area 2**
  - Utility Corridor
  - Administrative and Developed Rec. Sites
- Management Area 3**
  - Groundwater Management Zone (GMZ)
  - Soil Restricted Area (SRA)
  - SRA/GMZ
  - Wauponsee Trail
- Railroad
- Municipality

*This product is reproduced from geospatial information prepared by the U.S. Department of Agriculture, Forest Service. GIS data and product accuracy may vary. They may be: developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. This information was released on Date: 11/26/2007. The Forest Service reserves the right to correct, update, modify, or replace, GIS products without notification. For more information, contact Office: Midewin National Tallgrass Prairie at (815) 423-6370.*



Midewin National Tallgrass Prairie  
30239 South State Route 53  
Wilmington, Illinois 60481  
(815) 423-6370

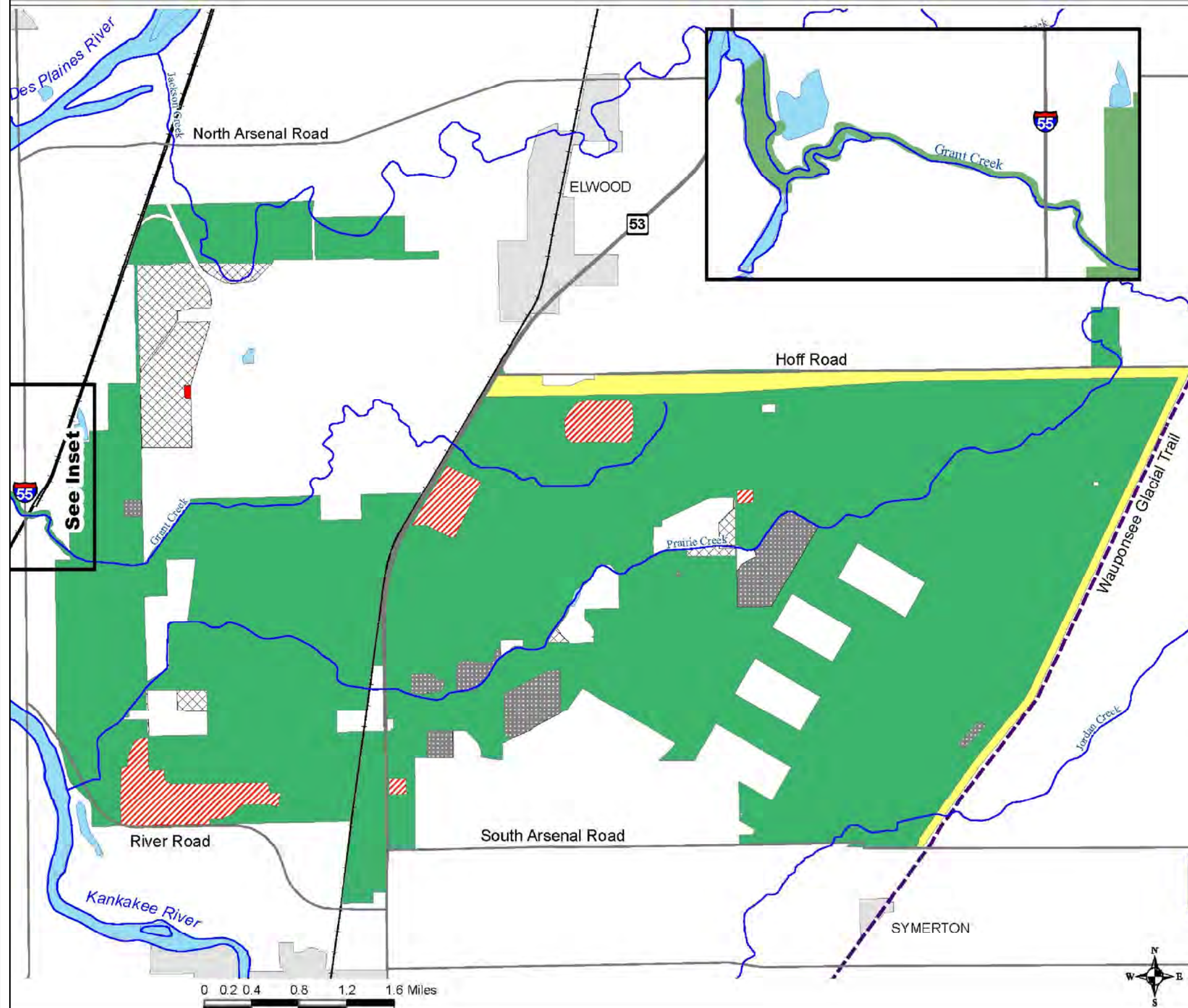


## **Attachment 12**

### **FIGURES**

- **USDA Land Use Restricted Areas**
- **Non-Federal Land Use Restricted Areas**
- **Non-Federal Property Ownership**
- **Land Use Planning and Zoning Maps**





**Figure 1**  
Midewin National Tallgrass Prairie

Management Areas  
Amendment 1

### LEGEND

- Public Roads
- Management Area 1**
- Restoration
- Management Area 2**
- Utility Corridor
- ▨ Administrative and Developed Rec. Sites
- Management Area 3**
- ▨ Groundwater Management Zone (GMZ)
- ▨ Soil Restricted Area (SRA)
- SRA/GMZ
- - - Wauponsee Trail
- +— Railroad
- Municipality

*This product is reproduced from geospatial information prepared by the U.S. Department of Agriculture, Forest Service. GIS data and product accuracy may vary. They may be: developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. This information was released on Date: 11/26/2007. The Forest Service reserves the right to correct, update, modify, or replace, GIS products without notification. For more information, contact Office, Midewin National Tallgrass Prairie at (815) 423-6370.*

**Midewin National Tallgrass Prairie**  
30239 South State Route 53  
Wilmington, Illinois 60481  
(815) 423-6370



Map From: USDA Forest Service, Land and Resource Management Plan (Prairie Plan) Amendment #1 - Midewin National Tallgrass Prairie, Wilmington, Will County, Illinois (June 2008)

Description	
By	
Date	
Revision	

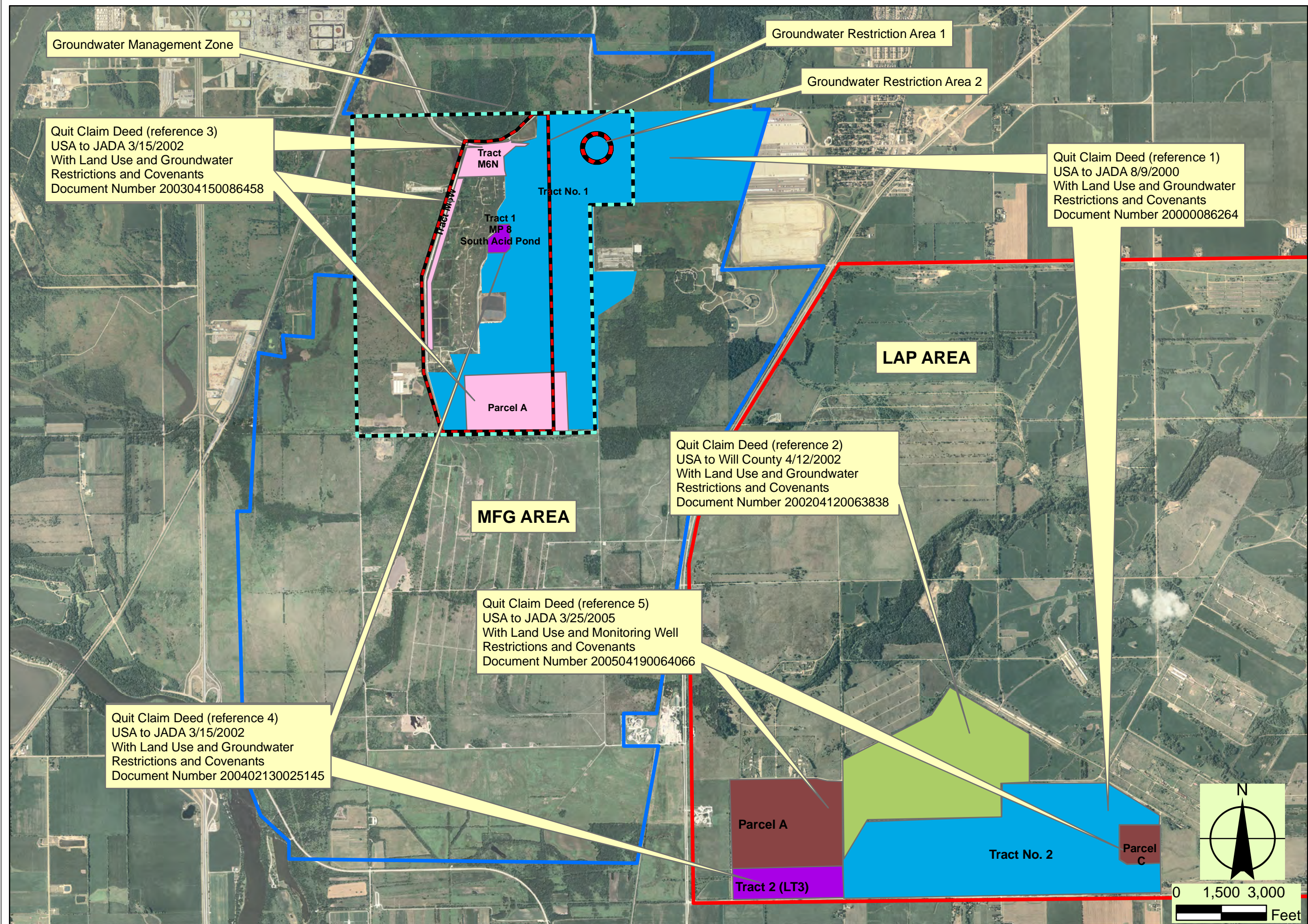
LOCATION PLAN SHOWING LAND USE RESTRICTIONS ON  
PROPERTY TRANSFERRED TO USDA FOREST SERVICE

SECOND FIVE-YEAR REVIEW REPORT  
GROUNDWATER OPERABLE UNIT  
JOLIET ARMY AMMUNITION PLANT  
WILMINGTON, WILL COUNTY, ILLINOIS

FIGURE: A12-1







Revision	Date	By	Description

<b>LOCATION PLAN SHOWING INITIAL FEDERAL TO STATE and COUNTY PROPERTY TRANSFERS WITH LAND USE RESTRICTIONS</b>	
<b>SECOND FIVE-YEAR REVIEW REPORT GROUNDWATER OPERABLE UNIT JOLIET ARMY AMMUNITION PLANT WILMINGTON, WILL COUNTY, ILLINOIS</b>	

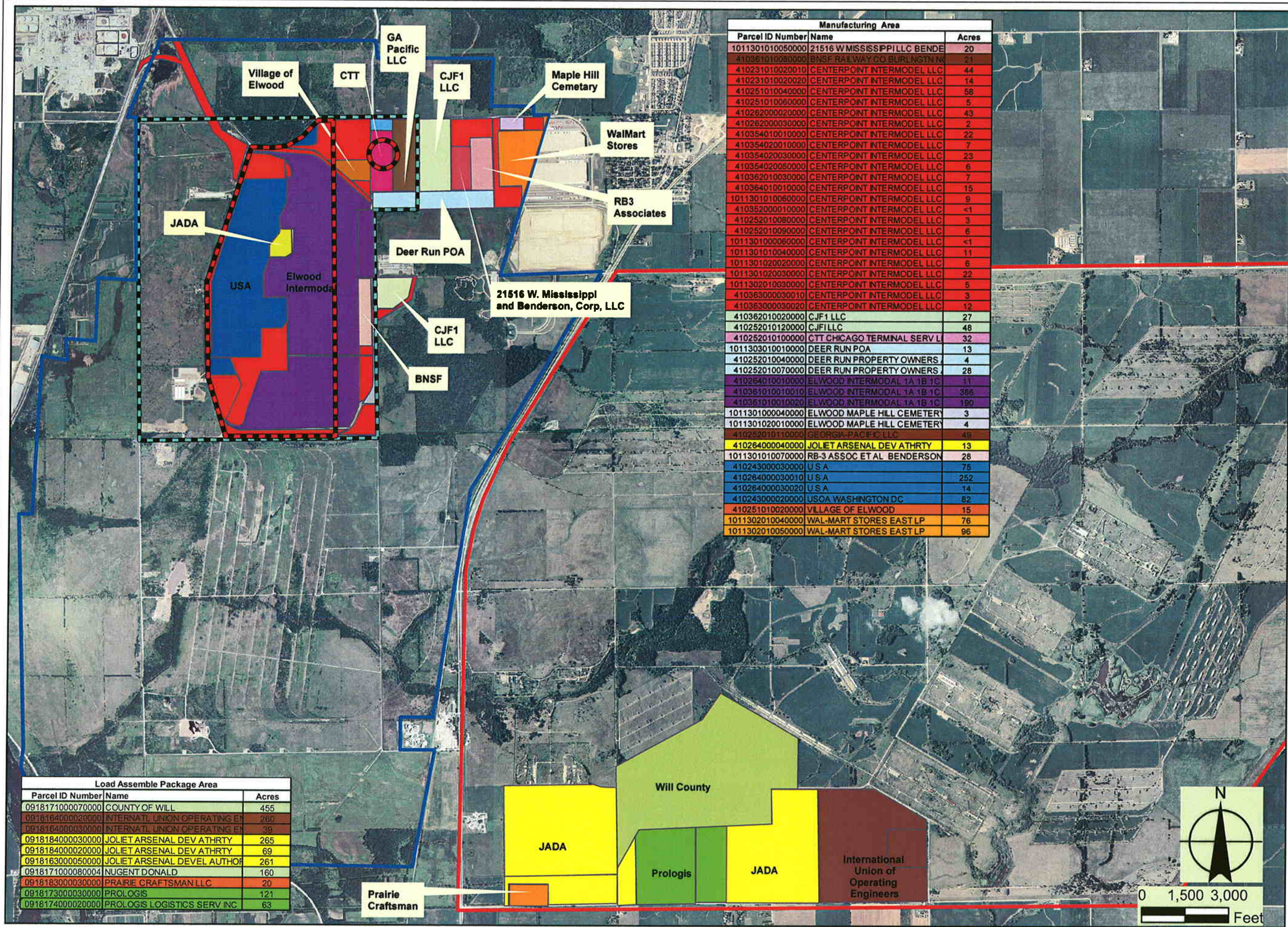
  

<b>FIGURE: A12-2</b>
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<b>AEROSTAR</b> ENVIRONMENTAL SERVICES, INC.
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Revision	Date	By	Description

**LOCATION PLAN SHOWING PROPERTY OWNERSHIP IN DEED-RESTRICTED AREAS**

**SECOND FIVE-YEAR REVIEW REPORT  
GROUNDWATER OPERABLE UNIT  
JOLIET ARMY AMMUNITION PLANT  
WILMINGTON, WILL COUNTY, ILLINOIS**

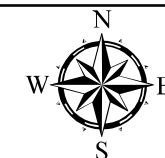
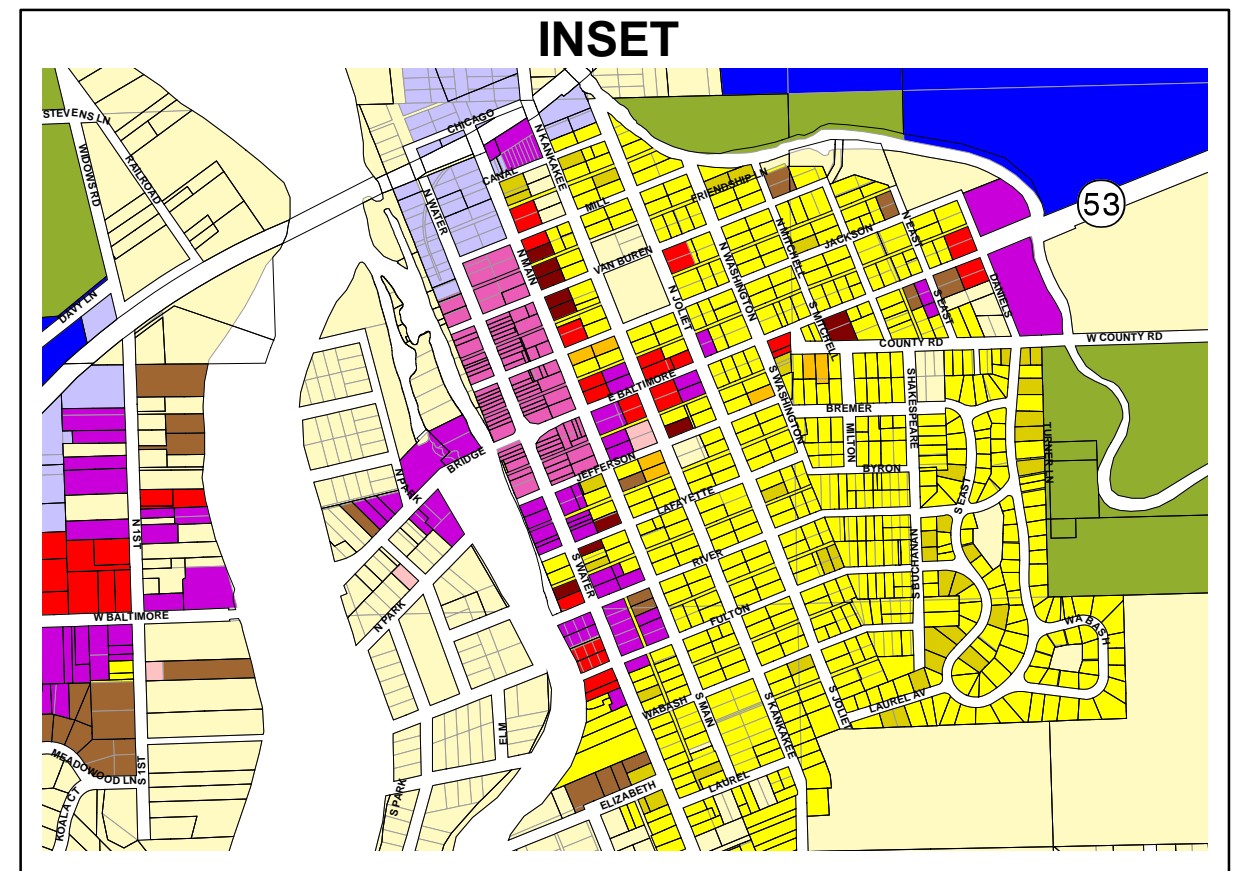
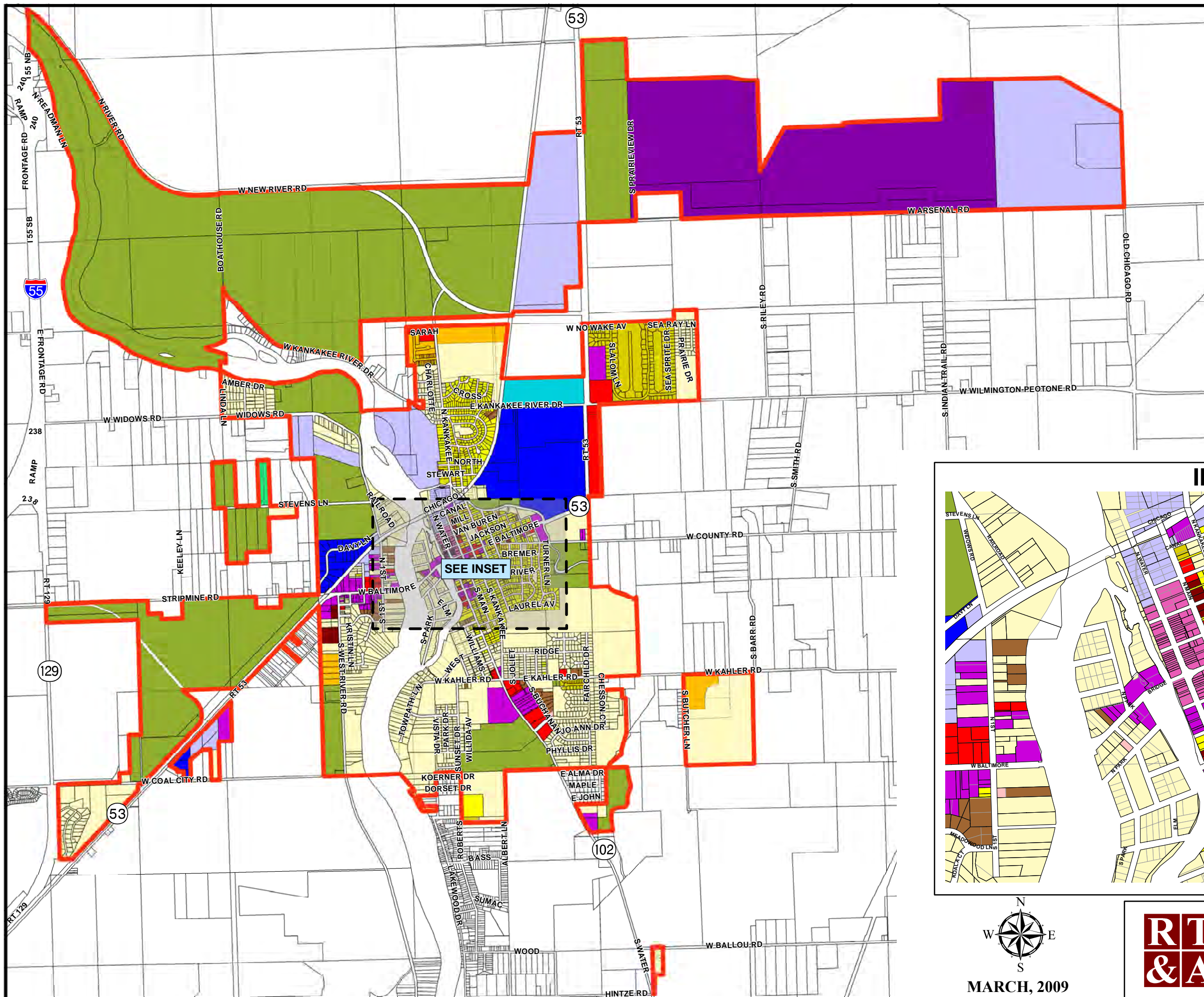
**FIGURE: A12-3**





# CITY OF WILMINGTON 2009 ZONING MAP

-  WILMINGTON CORPORATE LIMITS
-  A1 - AGRICULTURAL
-  ER - ESTATE RESIDENTIAL
-  GR - GENERAL RESIDENTIAL
-  R1 - RESIDENTIAL, SINGLE FAMILY
-  R2 - RESIDENTIAL, SINGLE FAMILY
-  R3 - RESIDENTIAL, TWO-FAMILY
-  R4 - RESIDENTIAL, TOWNHOUSE
-  R5 - RESIDENTIAL, MULTI-FAMILY
-  RB - RESTRICTED BUSINESS
-  B1 - NEIGHBORHOOD COMMERCIAL
-  B2 - LIGHT COMMERCIAL
-  B2A - CENTRAL BUSINESS
-  B3 - GENERAL COMMERCIAL
-  I1 - OFFICE, RESEARCH, LIGHT INDUSTRIAL
-  I2 - LIGHT INDUSTRIAL
-  I3 - HEAVY INDUSTRIAL
-  I4 - PLANNED INDUSTRIAL



MARCH, 2009



Ruettiger, Tonelli & Associates, Inc.

Surveyors Engineers Planners Landscape Architects G.I.S. Consultants

2174 ONEIDA STREET - JOLIET, ILLINOIS 60435

PH. (815) 744-6600 FAX (815) 744-0101

website: [www.ruettigertonnelli.com](http://www.ruettigertonnelli.com)

Figure A12-4



**ELWOOD CORPORATE LIMITS**

**A-1 AGRICULTURAL**

**C-1 LOCAL SHOPPING**

**C-2 COMMUNITY SHOPPING**

**C-3 TOWN CENTER BUSINESS DISTRICT**

**I-1 OFFICE, RESEARCH, LIGHT INDUSTRIAL**

**I-2 LIGHT INDUSTRIAL**

**I-3 HEAVY INDUSTRIAL**

**I-4 LARGE SCALE PLANNED INDUSTRIAL**

**G-R GENERAL RESIDENTIAL**

**R-1 SINGLE-FAMILY RESIDENCE**

**R-2 SINGLE-FAMILY AND TWO-FAMILY RESIDENCE**

**R-3 MULTI-FAMILY RESIDENCE**

**R-5 SINGLE-FAMILY ATTACHED (TOWNHOME) RESIDENCE**

**I-4 CATEGORIES**

**A- INTERMODAL AND RELATED USES**

**B- INDUSTRIAL PARK USES**

**C- RESIDENTIAL PROTECTION ZONE**

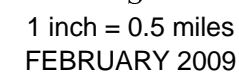
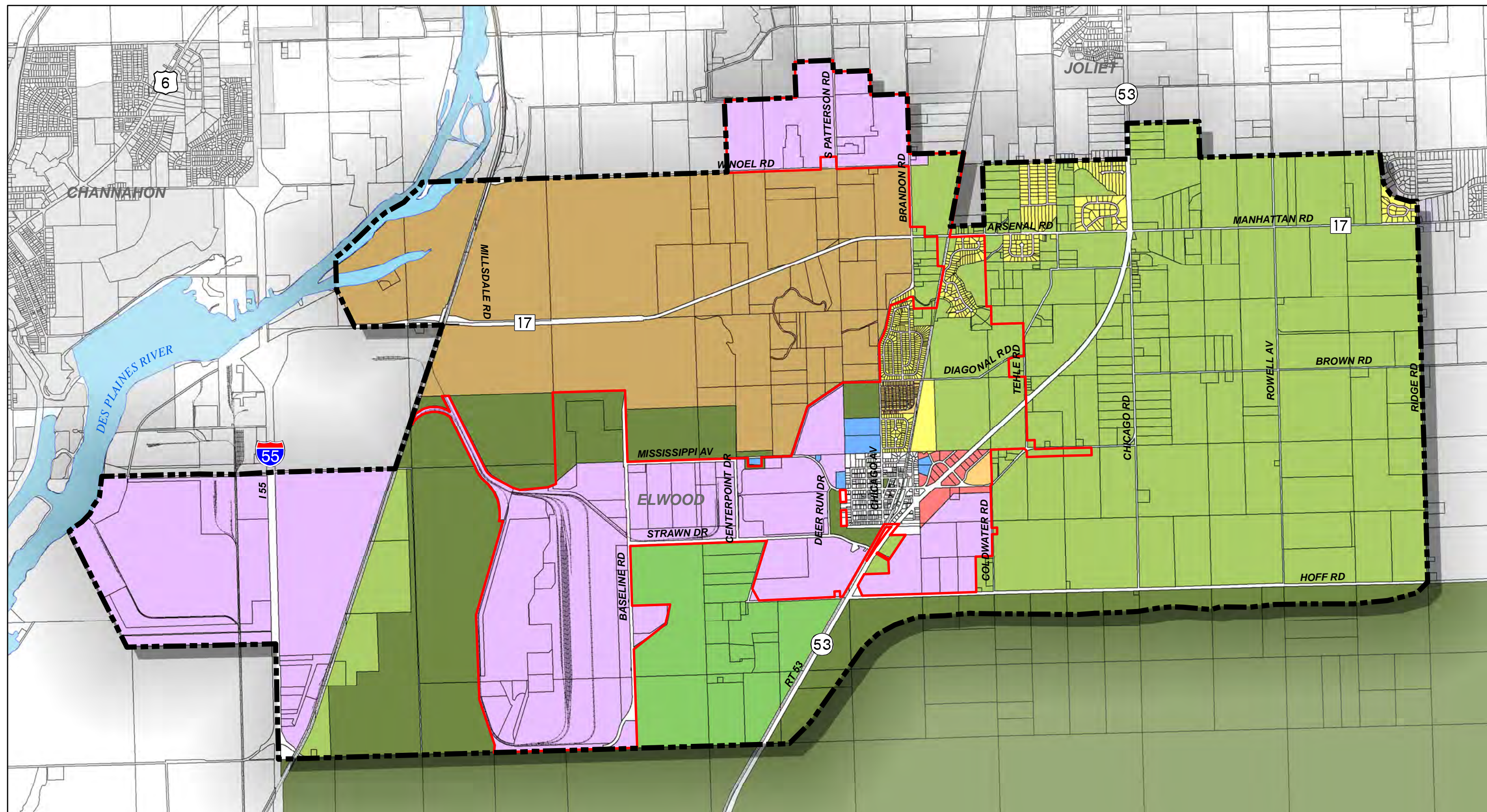
[illegible]

Figure A12-5





# Legend

Planning Area

Elwood Corporate Limits

## Existing Land Use

Agricultural/Rural Residential

Single-Family Residential

Multi-Family Residential

Industrial

Commercial

Government/Institution

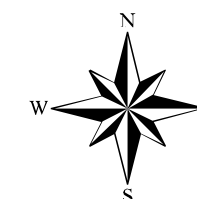
Open Space

Abraham Lincoln National Cemetery

Joliet Army Training Area

Utility

Nearby Municipalities



October 2008

## Comprehensive Plan

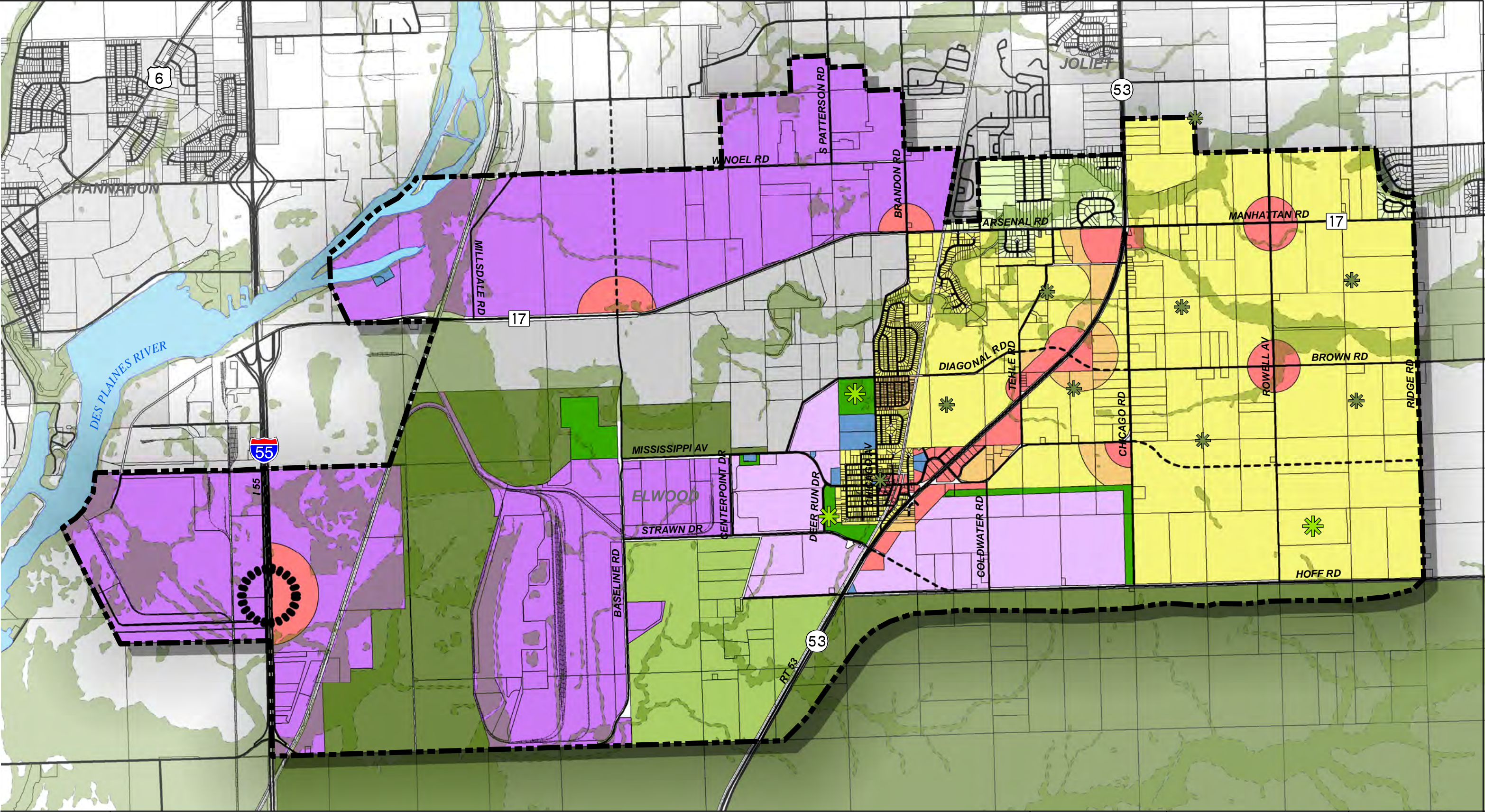
## Existing Land Use Map Illustration 2



Village of Elwood

Figure A12-6







**Legend**

 Planning Area

 Proposed Interchange

 Existing Road

 Proposed Road

**Proposed Land Use**

 Rural Residential	 Light Industrial
 Single-Family Residential	 Industrial
 Multi-Family Residential	 Governmental/Institutional

 Commercial	 Park/Open Space
 Light Industrial	 Midwin National Tall Grass Prairie
 Industrial	 Abraham Lincoln National Cemetery
 Governmental/Institutional	 Joliet Army Training Area

**Environmentally Sensitive Area**

 Environmentally Sensitive Area

**Parks Plan**

 Community Park

 Neighborhood Park




October 2008

**Comprehensive Plan**

**Proposed Land Use Map**

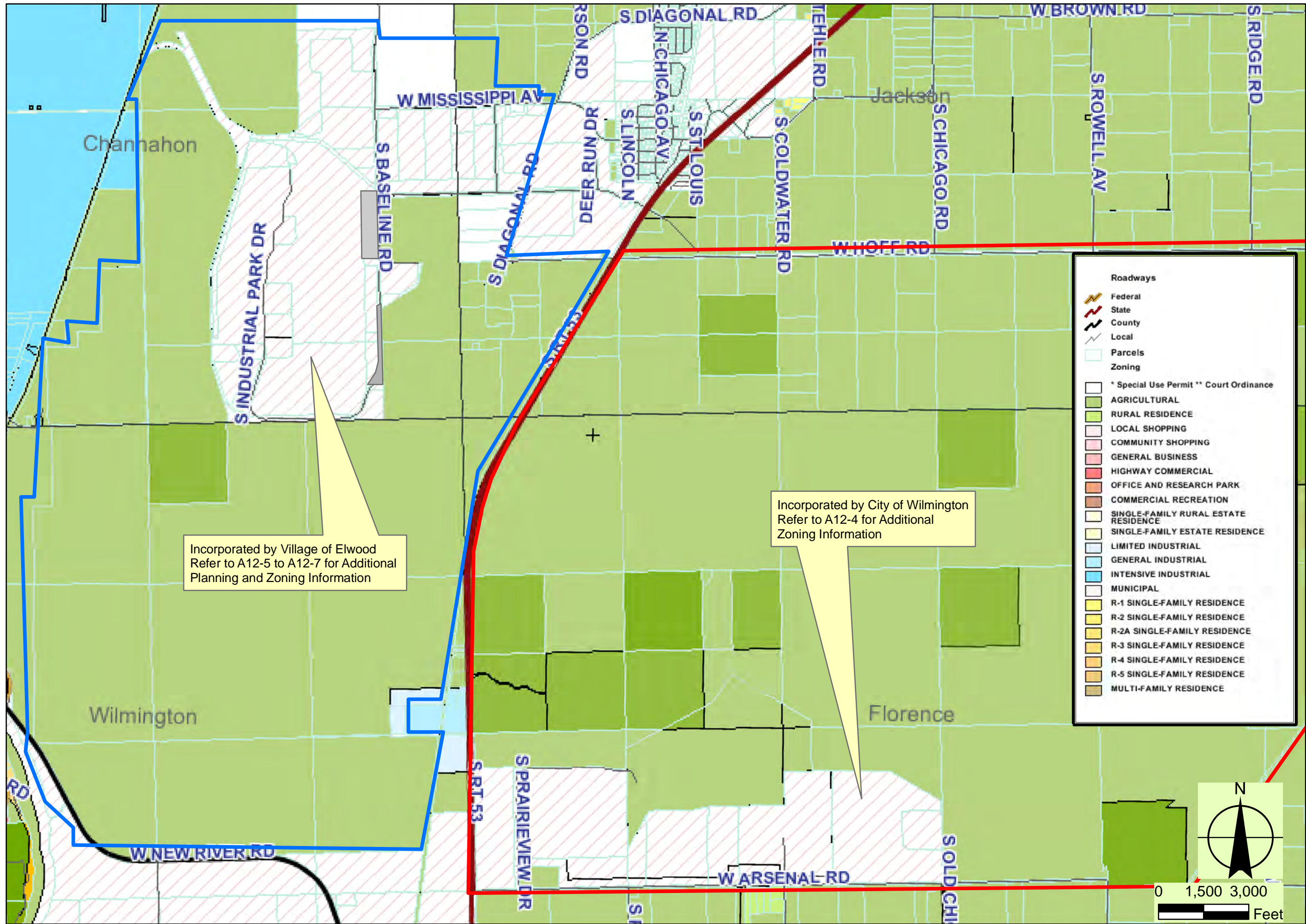
Illustration 6



Village of Elwood

Figure A12-7





Revision	Date	By	Description

LOCATION PLAN SHOWING WILL COUNTY PROPERTY ZONING

SECOND FIVE-YEAR REVIEW REPORT  
GROUNDWATER OPERABLE UNIT  
JOLIET ARMY AMMUNITION PLANT  
WILMINGTON, WILL COUNTY, ILLINOIS

FIGURE: A12-8

## **Attachment 12**

### **Reference Documents With Land Use Restrictions (Initial Deeds for Non-Federal Transfers)**

- **Document Number 20000086264 8/9/2000**
- **Document Number 200402130025145 3/15/2002**
- **Document Number 200504190064066 3/25/2005**
- **Document Number 200204120063838 4/12/2002**



## **Attachment 12**

Reference Document 1

R2000086264

QUIT CLAIM DEED OF CONVEYANCE  
WITH LAND USE RESTRICTIONS AND  
COVENANTS AND GROUNDWATER  
RESTRICTIONS AND COVENANTS

MARY ANN STUKEL

103P

Will County Recorder

Will County

R 2000086264

Page 1 of 103

LAK Date 08/11/2000

Time 11:24:59

Recording Fees:

114.00

13539128 Pel 1  
13670128 Pel 1,2,3  
13412238 Pel 1,2

THIS QUIT CLAIM DEED OF CONVEYANCE (hereinafter "Deed") is made and entered into by and between the UNITED STATES OF AMERICA (the "GRANTOR"), acting by and through the Deputy Assistant Secretary of the Army (I&H) pursuant to a delegation of authority from the SECRETARY OF THE ARMY (the "Army"), under and pursuant to the powers and authorities contained in the provisions of Section 2923 of the National Defense Authorization Act For Fiscal Year 1996, Public Law No. 104-106, Division B, Title XXIX, Subtitle B, Sections 2901 et. seq., approved February 10, 1996 (the "Federal Act") C/O Commander and District Engineer, United States Army Corps of Engineers, Louisville District, ATTN: CELRL-RE-M, P.O. Box 59, Louisville, Kentucky 40201-0059, and THE JOLIET ARSENAL DEVELOPMENT AUTHORITY, Designee of the State of Illinois, and acting as the Agent of the State of Illinois for the purpose of accepting title to this real estate, C/O Mr. Richard A. Kwasneski, Executive Director, Joliet Arsenal Development Authority, 500 South Water Street, Wilmington, Illinois 60481 (the "GRANTEE").

WITNESSETH: That for the monetary consideration as set forth in Article I. of this Deed, Grantor does hereby convey and quit claim to Grantee all interest in four (4) tracts of real estate located in Will County, Illinois, being more particularly described in Exhibit B, which is attached hereto and incorporated herein, and defined as "Tract No. 1", "Tract No. 2", "Tract No. 3", and "Tract No. 4". All four Tracts shall be collectively referred to herein as the "Property".

Concurrent to and consistent with this Deed, Grantor and Grantee have entered into a Memorandum of Agreement (hereinafter "MOA") dated August 2, 2000, a copy of which is attached hereto and incorporated herein as Exhibit A. The MOA sets forth additional rights and responsibilities of the parties to the MOA with respect to the Property and other real estate, and further addresses the parallel activities of remediating a portion of the site in a manner consistent with law while allowing the Property to be redeveloped.

EXEMPT UNDER PROVISIONS OF  
PARAGRAPH b, SECTION 4, REAL  
ESTATE TRANSFER TAX ACT.

8/9/00  
DATE

Kathryn A. L.  
SIGNATURE

18/103

**I. DEFERRED PAYMENT AND INTERIM LEASING BY GRANTEE  
TRACT NO. 1., TRACT NO. 2., TRACT NO. 3., AND TRACT NO. 4.:**

Subject to the terms and conditions as set forth in Sections A, B, and C of this Article I, and in accordance with the Federal Act, the monetary consideration to be paid by Grantee on behalf of the State of Illinois for the conveyance of the Property to Grantee (the "Conveyance Consideration") shall be, (i) with respect to Tract No. 1, zero (the "Tract No. 1 Conveyance Consideration"), which reflects the fair market value Tract No. 1 as of the date of conveyance (\$1,304,650), less the fair market value of the work conducted on Tract No. 1 in order to render it in marketable condition for industrial use (the value of which work equals or exceeds \$1,317, 822), and (ii) with respect to Tract Nos. 2, 3 and 4, ONE MILLION ONE HUNDRED NINETY-TWO THOUSAND FOUR HUNDRED TWENTY SEVEN DOLLARS AND TWENTY FOUR CENTS (\$1,192,427.24), (the "Tract Nos. 2, 3 and 4 Conveyance Consideration") which reflects the fair market value of Tract Nos. 2, 3 and 4 as of the date of delivery, acceptance, and recording of this Deed (the "Conveyance Date").

The subject consideration shall be paid as follows:

A. PAYMENT OF TRACT NO. 1 CONVEYANCE CONSIDERATION: No further payment is due to Grantor as it concerns this portion of the Property.

B. PAYMENT OF TRACT NOS. 2, 3 AND 4 CONVEYANCE CONSIDERATION DEFERRED FOR A TWENTY (20) YEAR PERIOD: Subject to the terms and conditions as set forth in Sections B and C of this Article I, the Tract Nos. 2, 3 and 4 Conveyance Consideration shall be paid to Grantor twenty (20) years after the Conveyance Date.

C. PAYMENT OF CURRENT FAIR MARKET VALUE, EXCLUDING THE VALUE OF ANY IMPROVEMENTS, FOR THE RECONVEYANCE OF ALL OR A PART OF TRACT NOS. 2, 3 OR 4 DURING THE TWENTY (20) YEAR PERIOD OF DEFERRED PAYMENT: In the event Grantee acting on behalf of the State of Illinois conveys all or a part of Tract Nos. 2, 3 or 4, other than to the State of Illinois (including its agencies, branches and political subdivisions)(a "Reconveyance") during the twenty (20) year period of deferred payment (reference Section B of Article I), Grantee shall pay to Grantor an amount equal to the fair market value excluding improvements of that portion of Tract Nos. 2, 3 or 4 reconveyed (determined as of the date of such Reconveyance in the manner provided below in this Section C. of Article I, the "Reconveyance Consideration"). However, if such a Reconveyance occurs within thirty (30) days of the Conveyance Date the Reconveyance Consideration applicable to the portion of Tract Nos. 2, 3 or 4 reconveyed shall be based on the Tract Nos. 2, 3 and 4 Conveyance Consideration, prorated on a per acre basis. As an alternative to making an immediate payment to Grantor, if Reconveyance occurs within two years of the Conveyance Date, Grantee may defer payment of the Reconveyance Consideration applicable to the portion of Tract Nos. 2, 3 or 4 reconveyed for up to two years after the date of such Reconveyance. If Grantee so elects to defer payment, then (i) in addition to payment of the applicable Reconveyance Consideration, Grantee shall pay to Grantor interest on a monthly basis (based upon the prevailing interest rate for the ten (10) year U.S. Treasuries maturities as published in the Wall Street Journal plus 1-1/2 percentage points rounded to the nearest 1/8<sup>th</sup> percent) on the

principal amount of the Reconveyance Consideration so deferred, with any interest that is not paid when due being added to outstanding principal, and (ii) the Reconveyance Consideration, together with all accrued but unpaid interest thereon, shall be paid on or before the date that is two years after the date of applicable Reconveyance.

The Reconveyance Consideration for the portion of Tracts Nos. 2, 3 or 4 subject to a Reconveyance will be based upon the fair market value of such portion of the Property and will be determined by the Secretary of the Army in accordance with federal appraisal standards. In making his decision, the Secretary will consider an appraisal conducted by a certified land appraiser agreed to by Grantor and Grantee. Grantee shall pay the cost of the appraisal. The fair market value of such portion of the Property shall exclude the value of any improvements made thereto since the Conveyance Date by or on behalf of Grantee.

The monetary consideration to be paid for those portions of Tract Nos. 2, 3 or 4, not reconveyed as described above shall be the Tract Nos. 2, 3 and 4 Conveyance Consideration allocated on a per acre basis.

**D. POTENTIAL PAYMENT OF CURRENT FAIR MARKET VALUE, EXCLUDING THE VALUE OF ANY IMPROVEMENTS, UPON LEASING OF ALL OR A PART OF TRACT NOS. 2, 3 AND 4 DURING THE TWENTY (20) YEAR PERIOD OF DEFERRED PAYMENT:** In the event Grantee leases all or a part of Tract Nos. 2, 3 or 4 during the twenty (20) year period of deferred payment (reference Section B.), other than to the State of Illinois (including its agencies, branches and political subdivisions), Grantor shall have the right to treat the lease as a Reconveyance if the Secretary of the Army determines that the referenced transaction is being used to avoid the application of the payment provisions as set forth in Section C. of this Article. Should the Secretary of the Army determine that the referenced transaction is being used to avoid the application of payment provisions as set forth in Section C. of this Article, Grantee shall pay to Grantor an amount equal to the fair market value of the demised premises as of the date of the execution and delivery of the lease. The Secretary of the Army shall determine fair market value in accordance with federal appraisal standards. In making his decision, the Secretary will consider an appraisal conducted by a certified land appraiser agreed to by Grantor and Grantee. Grantee shall pay the cost of the appraisal. The fair market value of the demised Property shall exclude the value of any improvements made thereto since the Conveyance Date by or on behalf of Grantee.

The monetary consideration to be paid for those portions of Tract Nos. 2, 3 or 4, not demised by Grantee shall be the Tract Nos. 2, 3 and 4 Conveyance Consideration allocated on a per acre basis.

## **II. ADDITIONAL CONVEYANCES (EASEMENTS/APPURTENANCES/IMPROVEMENTS, IF ANY):**

IN ADDITION, for the monetary consideration as set forth in Article I. of this Deed, Grantor does hereby convey and quit claim to Grantee:

A. All of Grantor's right, title, and interest (including all appurtenances / improvements, if any, located within the described boundary) in and to the perpetual and assignable railroad easement and right-of-way reserved by Grantor in a Quitclaim Deed, dated March 4, 1964, recorded in Liber 2086 at page 133 (Document No. 1004325) in the Office of the Register of Deeds, Will County, Illinois.

B. All of Grantor's right, title, and interest (including all appurtenances / improvements, if any, located within the described boundary) in and to the perpetual and assignable roadway and water pipeline easements and rights-of-way reserved by Grantor in a Quitclaim Deed, dated June 15, 1964, recorded in Liber 2103 at page 713 (Document No. 1013080) in the Office of the Register of Deeds, Will County, Illinois.

C. All of Grantor's right, title, and interest (including all appurtenances / improvements, if any, located within the described boundaries) in and to the perpetual and assignable waterline, electric power and communication easements and rights-of-way reserved by Grantor in a Quitclaim Deed, dated October 6, 1967, recorded in Liber Roll at page 9 (Document No. R67-15288) in the Office of the Register of Deeds, Will County, Illinois.

### **III. RESERVED EASEMENTS AND RIGHTS-OF-WAY:**

Grantor does hereby reserve a temporary roadway, water, electric, gas, and telephone easement and right-of-way in, on, over, and across the tract of real estate described herein as Tract No. 2. The subject easement and right-of-way is more particularly described in Exhibit C, attached hereto and incorporated herein. The temporary roadway, water, electric, gas, and telephone easement and right-of-way herein reserved shall be subject to the following easement rights, conditions, and covenants:

A. The subject easement and right-of-way is reserved for the primary use and benefit of Will County, Illinois, its representatives, agents, and contractors.

B. The subject easement and right-of-way shall be used by Will County, Illinois, its representatives, agents, and contractors, for nonexclusive/temporary roadway and nonexclusive/temporary utility access to the tract of real estate (hereinafter referred to as the Will County, Illinois Landfill Tract) to be conveyed by Grantor to Will County, Illinois under and pursuant to the powers and authorities contained in the provisions of Section 2922 of the Federal Act.

C. Pursuant to the Will County deed, Will County, Illinois, its representatives, agents, and contractors shall have the nonexclusive/temporary right to reconstruct or improve, use, and maintain the existing roadway (Road 2 West) located within the boundary of the subject easement and right-of-way. The condition of the existing roadway will be documented by Will County and Grantor prior to its use. During the term of the subject easement, Will County, Illinois shall maintain and repair the referenced roadway. Upon termination of the temporary easement, Will County, Illinois shall repair the referenced roadway to its original, documented condition, or to a condition acceptable to Grantee.

D. Will County, Illinois, its representatives, agents, and contractors shall have the nonexclusive/temporary right to use the subject easement as a utility corridor (water, electric, gas, and telephone). The referenced right shall include, but shall not be limited to, the location, construction, operation, maintenance, alteration, repair, and patrol of underground and overhead water, electric, gas, and telephone utilities and appurtenances thereto; together with the right to trim, cut, fell, and remove therefrom all trees, underbrush, obstructions, and other vegetation, structures, or obstacles within the boundary of the subject easement and right-of-way.

E. Grantee, its successors and assigns, future owners, heirs, and executors, shall have such rights and privileges as may be used without interfering with or abridging the rights and easement herein reserved by Grantor.

F. Upon the transfer of the property identified as JOAAP parcels L16, L17, and parts of L14 and L15 to the Grantee herein pursuant to Section 2923 of the Federal Act, Grantor will release the temporary roadway, water, electric, gas, and telephone easement and right-of-way. When the temporary easement is terminated, the Grantor herein will convey a perpetual easement to Will County over the property herein described in Exhibit H attached hereto.

#### **IV. "AS IS" AND "WHERE IS" CONDITION:**

Except as otherwise provided in this Deed and except for: (1) the environmental condition of the Property; (2) obligations imposed under the Federal Act; and (3) obligations imposed under the Comprehensive Environmental Response, Compensation, and Liability Act (42 USC Section 9601 et seq., as amended, hereinafter "CERCLA"); the Property, including all improvements located thereon, is conveyed "AS IS" and "WHERE IS" without representation, warranty, or guaranty by Grantor as to the quantity, quality, character, title, condition, size or kind, or that the same is in condition or fit to be used for the purpose for which intended, and no claim for allowance or deduction upon such grounds will be considered; there is no obligation on the part of Grantor to make any alterations, repairs, or additions; Grantor shall not be liable for any latent or patent defects to or on the Property, including all improvements located thereon; and Grantee acknowledges that Grantor has made no representation or warranty concerning the condition or state of repair of the Property, including all improvements located thereon, nor any agreement or promise to alter, improve, adapt, or repair any portion of the Property.

#### **V. NOTICE OF THE PRESENCE OF ASBESTOS:**

A. Grantee, and its successors and assigns, future owners, heirs and executors, is hereby informed and does acknowledge that non-friable asbestos or asbestos-containing materials ("ACM") has been found on the Property, as described in the final installation-wide Enhanced Preliminary Assessment Screening dated September 1997. To the best of Grantor's knowledge, the ACM on the Property does not currently pose a threat to human health or the environment.

B. Grantee covenants and agrees that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos, and that Grantor assumes no liability for future remediation of asbestos or damages for personal injury, illness, disability, or death arising from exposures to asbestos which occur after the date of this Deed, to Grantee, its successors and assigns, future owners, heirs, and executors, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the Property, whether Grantee, its successors and assigns, future owners, heirs and executors, have properly warned or failed to properly warn the individual(s) injured. Grantee agrees to be responsible for any future remediation of asbestos and ACM that are contained within or a part of buildings and/or structures existing on the Property, to the extent such remediation is required by law.

C. Unprotected or unregulated exposures to asbestos in product manufacturing and building construction workplaces have been associated with asbestos-related diseases. Both the Occupational Safety and Health Administration (hereinafter "OSHA") and the United States Environmental Protection Agency (hereinafter "USEPA") regulate asbestos because of the potential hazards associated with exposure to airborne asbestos fibers. Both OSHA and USEPA have determined that such exposure increases the risk of asbestos-related diseases, which include certain cancers and which can result in disability or death.

D. Grantee acknowledges that it has been notified of the opportunity to inspect the Property as to its asbestos content and condition and any hazardous-or environmental conditions relating thereto. Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos hazards or concerns.

E. No warranties, either expressed or implied, are given with regard to the condition of the Property, including, without limitation, whether the Property does or does not contain asbestos or is or is not safe for a particular purpose. The failure of Grantee to inspect, or to be fully informed as to the condition of all or any portion of the Property offered, will not constitute grounds for any claim or demand against the United States.

## **VI. LEAD BASED PAINT WARNING AND COVENANT:**

A. The Property does not contain structures or buildings suitable for residential dwellings. The Grantee, and its successors and assigns, future owners, heirs and executors, is hereby informed and does acknowledge that all buildings on the property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Lead exposure is especially harmful to young children and pregnant women. Such property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including learning disabilities, reduced intelligence quotient, behavioral problems and impaired memory.



B. Available information concerning known lead-based paint and/or lead-based paint hazards, the location of lead-based paint and/or lead-based paint hazards, and the condition of painted surfaces is contained in the Environmental Baseline Survey, which has been provided to the Grantee. Additionally, the Finding of Suitability to Transfer ("FOST") dated November 1998 has been provided to the Grantee. The Grantee has been provided with a copy of the federally approved pamphlet on lead poisoning prevention. The Grantee hereby acknowledges receipt of all of the information described in this Article.

C. A risk assessment or inspection by the Grantee, its successors and assigns, future owners, heirs and executors, for possible lead-based paint hazards is recommended prior to the transfer of the Property. The Grantee, its successors and assigns, future owners, heirs and executors, acknowledges that they have received the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards prior to execution of the transfer.

D. The Grantee, its successors and assigns, future owners, heirs and executors, shall comply with all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards as defined in 40 Code of Federal Regulations Part 745.223 in or on structures existing on the Property at the time of transfer.

E. The Army assumes no liability for remediation or damages for personal injury, illness, disability, or death, to the Grantee, its successors and assigns, future owners, heirs and executors, sublessees or to any other person, including members of the general public, arising from or incident to post-transfer possession and/or use of structures existing on the Property at the time of transfer containing lead-based paint. Grantee acknowledges this disclaimer and covenants not to initiate any claim against the Army relating to or arising from the lead based paint in said structures.

#### **VII. NOTICE OF THE POTENTIAL FOR THE PRESENCE OF ORDNANCE AND EXPLOSIVE WASTE (OEW) AND UNEXPLODED ORDNANCE (UXO):**

Ordnance and Explosive Waste ("OEW") investigations indicate that OEW is not likely on the Property. However, because this is a former military installation with a history of OEW there is potential for OEW to be present on the Property. In the event that Grantee, its successors and assigns, future owners, heirs, and executors, should discover what appears to be of an ordnance or explosive nature on the Property, said Parties shall not attempt to remove or destroy such items, will immediately stop any excavation or other work in the area, and notify the local Police Department and the nearest Department of the Army Explosive Ordnance Detachment. Grantor acknowledges its responsibility for OEW and Unexploded Ordnance ("UXO") and will take prompt action upon notification of discovery. For purposes of this Deed, OEW, Ordnance and Explosive Waste shall have the same meaning as that provided in the US Army Engineer Regulation (ER) 385-1-92, Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities, 18 March 1994 or successor authority. ER 385-1-92 currently defines OEW as Ordnance and Explosive Waste which is anything related to munitions designed to cause damage

to personnel or material through explosive force, incendiary action or toxic effects. Soils with explosive constituents are considered explosive waste if the concentration is sufficient to be reactive and present an imminent safety hazard as determined by the US Army Corps of Engineers, Ordnance and Explosive Waste, Mandatory Center of Expertise. UXO shall have the same meaning as that provided in the US Army Engineer Regulation (ER) 385-1-92, Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities, 18 March 1994 or successor authority. ER 385-1-92 currently defines UXO as an item of explosive ordnance which has failed to function as designed or has been abandoned, discarded or improperly disposed of and is still capable of functioning causing damage to personnel or material.

### **VIII. CERCLA COVENANTS AND NOTICE:**

A. Pursuant to Section 120(h)(3) of CERCLA, for Tract No. 1., Tract No. 2., Tract No. 3., and Tract No. 4.:

1. Grantor hereby notifies Grantee that: (1) hazardous substances were stored, released, and disposed on the Property so as to exceed the time period or quantity limits established by 40 CFR Part 373 for notification (for the purpose of this Deed, "hazardous substances" shall have the same meaning as Section 101(14) of CERCLA); (2) available information regarding the type, quantity, and location of such substances and actions taken is at Exhibit D attached hereto and incorporated herein (also included in Exhibit D is a table identifying the chemicals used, stored, released and/or disposed on Joliet Army Ammunition Plant); (3) except as indicated by this table at Exhibit D, there is no evidence indicating that hazardous substances were released on site, and the information regarding this storage and release indicates that there is no known existing threat to human health and the environment.

2. Grantor hereby covenants that all remedial action necessary to protect human health and the environment with respect to any such hazardous substances remaining on the Property has been taken before the date of conveyance hereunder and are consistent with planned future use as a commercial and industrial park; and as between Grantor and Grantee, the Grantee's successors and assigns, future owners, heirs, and executors, any additional remedial action found to be necessary with regard to such hazardous substances remaining after the date of the conveyance shall be Grantor's responsibility; provided that Grantor shall be entitled to exercise its rights with respect to any potentially responsible party. Notwithstanding, the foregoing, pursuant to CERCLA Section 120(h)(3)(B), the covenant issued to Grantee under this Subsection VIII.A.2. of this Deed shall not run to any person or entity determined to be potentially responsible party with regard to property conveyed under this Deed.

3. The remedial action for contaminated groundwater consists of establishing Groundwater Management Zones, deed restrictions, periodic site inspections, groundwater and surface water monitoring, and natural attenuation.

4. Consistent with the terms of the MOA, Grantor reserves a perpetual easement and right of access to the Property, which Grantor may exercise in any case in which

investigation, sampling, remedial action, corrective action, installing or removing groundwater monitoring wells, testing or monitoring of groundwater conditions is found to be necessary after the date of this Deed in order to fulfill Grantor's environmental responsibilities under this Deed; CERCLA; the June 1989 Federal Facility Agreement (hereinafter "FFA"); the October 1998 Record of Decision and any amendments thereto or any subsequent Records of Decision applicable to the Property (hereinafter "ROD"); and any other applicable laws and regulations.

5. For purposes of this Deed, Grantor and Grantee agree that the mere tenancy or occupation by Grantee, its successors and assigns, and all future owners, tenants, subtenants, heirs, and executors, of the portion of the Property so leased or occupied by Grantee, or the ownership of the Property by Grantee, its successors and assigns, future owners, heirs, and executors, will not cause any of said parties to be a potentially responsible party under this Deed solely because or as a result of such tenancy, occupancy or ownership.

**B. Pursuant to Section 120(h)(4) of CERCLA:**

1. The Grantor hereby notifies Grantee that the Grantor's FOST identified uncontaminated parcels on the Property, specifically; those parcels identified in the FOST as M115, M116, M117 and parts of L122, M5, and M7.

2. Grantor hereby covenants that any remedial action found to be necessary after the date of this conveyance shall be Grantor's responsibility; provided that Grantor shall be entitled to exercise its rights with respect to any potentially responsible party. For purposes of this Deed, Grantor and Grantee agree that the mere tenancy or occupation by Grantee, its successors and assigns, and all future owners, tenants, subtenants, heirs, and executors, of the portion of the Property so leased or occupied by Grantee or the ownership of the Property by Grantee, its successors and assigns, future owners, heirs, and executors, will not cause any of said parties to be a potentially responsible party under this Deed solely because or as a result of such tenancy, occupancy or ownership.

3. Consistent with the terms of the MOA, Grantor hereby reserves a perpetual easement and right of access to the Property, which Grantor may exercise in any case in which any response action, investigation, sampling, remedial action, corrective action, installing or removing groundwater monitoring wells, testing or monitoring of groundwater conditions is found to be necessary after the date of this Deed in order to fulfill Grantor's environmental responsibilities under this Deed; CERCLA; the FFA; the ROD, and any other applicable laws and regulations.

**IX. GRANTEE'S ACKNOWLEDGMENT OF THE ENVIRONMENTAL CONDITION OF THE PROPERTY:**

Grantee has reviewed the technical environmental reports including, but not limited to, the FOST, for the Property, including all improvements located thereon, prepared by Grantor. Grantee has no knowledge to conclude that the technical environmental reports do not accurately describe the environmental condition of the Property. Grantee has inspected the Property and

has no knowledge to conclude that the Property is not suitable for Grantee's intended use. Grantor shall not be responsible for the remediation of any hazardous substances or petroleum that are introduced onto the Property after the date hereof, except to the extent that Grantor introduces such hazardous substances or petroleum to the Property. This Article shall not affect Grantor's responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules, and regulations.

**X. LAND USE RESTRICTIONS AND COVENANTS AND MONITORING WELL RESTRICTIONS AND COVENANTS FOR TRACT NO. 1., TRACT NO. 2., TRACT NO. 3., AND TRACT NO. 4:**

Tract No. 1., Tract No. 2., Tract No. 3., and Tract No. 4., shall be subject to the land use restrictions and covenants as set forth in this Article.

A. It is the intent of Grantor and Grantee that the land use restrictions and covenants and monitoring well use restrictions and covenants as set forth in this Article shall run with the land and restrict the use of the above-referenced tracts pursuant to the legislative mandate set forth in the Federal Act and are necessary to ensure the protection of human health and the environment.

B. That within the boundaries of Tract Nos. 1, 2, 3, and 4, Grantee, its successors and assigns, future owners, heirs, and executors, shall not use, move, access, modify, remove, disturb, close, abandon, or otherwise harm or destroy any existing, or future existing, groundwater monitoring well that is owned by Grantor, without prior written permission from the Grantor in consultation with the USEPA and the Illinois Environmental Protection Agency (hereinafter "IEPA"). If written permission is granted to any landowner(s) for the installation of a replacement well, it shall be installed pursuant to applicable federal laws and regulations and the standards current at the time set forth in the Illinois Water Well Construction Code or successor codes.

C. Grantee covenants for itself, its successors, and assigns, future owners, heirs, and executors, that the land use restrictions and covenants as set forth in this Article shall be covenants running with the land and shall be binding upon the Grantee, its successors and assigns, future owners, heirs, and executors.

D. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the land use restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of the above-referenced tracts. Notwithstanding this provision, failure to include the land use restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.

E. Grantee, its successors and assigns, future owners, heirs, and executors, shall not knowingly or negligently undertake or allow any activity on or use of the above-referenced tracts that would violate the land use restrictions and covenants as set forth in this Article.

F. The land use restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.

G. It is the intent of the Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Grantee, its successors and assigns, future owners (excluding the United States), heirs, and executors, shall use the above-referenced tracts for commercial and industrial parks. In addition, the above-referenced tracts shall not be used by Grantee, its successors and assigns, future owners (including the United States), heirs, and executors, for:

1. any type of residential purpose;
2. any type of educational purpose for children in grades kindergarten through 12. The prohibition described in this Section shall not, however, apply to the property described in Exhibit E, attached hereto and incorporated herein, which is earmarked for transfer to the Forest Service following receipt of the Property by Grantee;
3. any type of child or adult care purpose, provided however, this prohibition shall not exclude any child day care facility operated solely within the confines of a building structure;
4. any type of solid or hazardous waste landfill purpose;
5. any type of commercial quarry operation; provided that the foregoing restriction shall not prohibit: (a) mass earth work and site grading activities, including borrow, fill, and balancing, or (b) the excavation and use of gravel, sand, stone, aggregate and other on-site materials as rail bed ballast, in making concrete or asphalt, or in the construction of detention and retention facilities, rail beds, roads, or rights-of-way, or (c) other construction activities on or about the Property or in constructing roads and railroads leading or connecting to the Property to a distance of no more than ten (10) miles from the Property;
6. any type of incineration of solid waste other than in connection with on-site manufacturing process(es); and

7. any type of concrete batch plant or asphalt plant, unless the concrete or asphalt batch plant is operated for the purpose of servicing construction activities associated with the development of the Property or in constructing roads and railroads leading or connecting to the Property to a distance of no more than then (10) miles from the Property.

# **XI. GROUNDWATER RESTRICTIONS AND COVENANTS FOR GROUNDWATER MANAGEMENT ZONE:**

The tract of real estate described in this Article (restricted parcel of real estate located within the boundary of Tract No. 1.) shall be subject to the groundwater restrictions and covenants as set forth in this Article.

A. The tract of real estate which is subject to the groundwater restrictions and covenants as set forth in this Article is located within the boundary of Tract No. 1., shall be referred to herein as the Groundwater Management Zone, and is more particularly described in Exhibit F attached hereto and incorporated herein.

B. It is the intent of Grantor and Grantee that the groundwater restrictions and covenants as set forth in this Article shall restrict the use of the Groundwater Management Zone for the protection of human health and the environment until such time as the Groundwater Management Zone has been remediated to the standards established in the ROD as contemplated in Section F below. The ROD and amendments or corrections thereto is available at the following repositories: Wilmington Library, Joliet Library, Administration Building at Joliet, Region 5 USEPA.

C. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the groundwater restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of the above-referenced tracts. Notwithstanding this provision, failure to include the groundwater restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.

D. Grantee, its successors and assigns, future owners, heirs, and executors, shall not undertake or allow any activity on or use of the above-referenced tracts that would violate the groundwater restrictions and covenants as set forth in this Article.

E. The groundwater restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.

F. Grantee covenants for itself, its successors, and assigns, future owners, heirs, and executors, that the groundwater restrictions and covenants as set forth in this Article shall be covenants running with the land and shall be binding upon Grantee, its successors and assigns, future owners, heirs, and executors. Upon the successful remediation of the Groundwater Management Zone to the industrial standards set forth in the ROD, Grantor, with the written concurrence of the USEPA and the IEPA, shall release, in whole or in part, any relevant groundwater restriction and covenant set forth in this Article. The referenced release shall not be unreasonably withheld. In addition, the referenced release shall be executed by the Secretary of the Army, United States Department of the Army, or his/her authorized designee.

G. It is the intent of Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Unless the following restrictions in this Section G are removed or amended in accordance with this Article, within the boundary of the Groundwater Management Zone, Grantee, its successors and assigns, future owners, heirs, and executors:

1. Shall not conduct any activity (e.g. any anthropogenic seismic activity, deep excavation activity, or drilling or pumping a well within the Silurian dolomite aquifer) that would increase the volume or area of the Contaminated Groundwater, damage the confining layers that underlie the Contaminated Groundwater (e.g. fracturing the Maquoketa confining layer or any other existing confining layer(s) or strata of the Maquoketa confining layer), or create pathways of exposure to human or ecological receptors from the Contaminated Groundwater to the extent prohibited by the ROD. For identification purposes, the groundwater within the glacial drift and the Silurian dolomite aquifer (collectively referred to herein as "the Contaminated Groundwater") is located above the Maquoketa confining bed.

2. Shall not use the groundwater above the Maquoketa confining bed for potable purposes.

H. Shallow groundwater above the Maquoketa confining bed has the potential to be contaminated with hazardous substances, including, but not limited to explosives, their derivatives or volatile organic compounds. In the event shallow groundwater above the Maquoketa confining bed is encountered at any time due to the disturbance or excavation of surface or subsurface soil, Grantee, its successors and assigns, future owners, heirs, and executors, shall comply with all laws and regulations that are applicable to the safe and proper management, discharge, disposal, or treatment of all shallow groundwater encountered.

## **XII. GROUNDWATER RESTRICTIONS AND COVENANTS FOR DEED RESTRICTED PARCEL NO. 1. AND DEED RESTRICTED PARCEL NO. 2.:**

The two (2) tracts of real estate described in this Article (restricted parcels of real estate located within the boundary of Tract No. 1.) shall be subject to the groundwater restrictions and covenants as set forth in this Article.



A. The two (2) tracts of real estate which are subject to the groundwater restrictions and covenants as set forth in this Article are located within boundary of Tract No. 1., shall be referred to herein as Deed Restricted Parcel No. 1. and Deed Restricted Parcel No. 2., and are more particularly described in Exhibit G attached hereto and incorporated herein.

B. It is the intent of Grantor and Grantee that the groundwater restrictions and covenants as set forth in this Article shall restrict the use of each Deed Restricted Parcel for the protection of human health and the environment until such time as that Deed Restricted Parcel has been remediated to the standards established in the ROD, as provided in Section F below.

C. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the groundwater restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of the above-referenced tracts. Notwithstanding this provision, failure to include the groundwater restriction and covenant as set forth in this Article in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.

D. Grantee, its successors and assigns, future owners, heirs, and executors, shall not undertake or allow any activity on or use of the above-referenced tracts that would violate the groundwater restrictions and covenants as set forth in this Article.

E. The groundwater restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.

F. Grantee covenants for itself, its successors and assigns, future owners, heirs, and executors, that the groundwater restrictions and covenants as set forth in this Article shall be covenants running with the land and shall be binding upon Grantee, its successors and assigns, future owners, heirs, and executors. Upon the successful remediation of a Deed Restricted Parcel to the industrial standards set forth in the ROD, Grantor, with the written concurrence of the USEPA and the IEPA, shall release, in whole or in part, any relevant groundwater restriction and covenant set forth in this Article. The referenced release shall not be unreasonably withheld. In addition, the referenced release shall be executed by the Secretary of the Army, United States Department of the Army, or his/her authorized designee.

G. It is the intent of Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Unless the following restrictions in this Section G are removed or amended in accordance with Section F or Article

XI.F., within the boundary of Deed Restricted Parcel No. 1. and Deed Restricted Parcel No. 2., Grantee, its successors and assigns, future owners, heirs, and executors:

1. Shall not use the Contaminated Groundwater; and
2. Shall not drill, construct, pump, or use groundwater supply wells;

### **XIII. CERCLA REMEDIATION:**

A. Grantor acknowledges that the Joliet Army Ammunition Plant, Will County, Illinois has been identified as a National Priorities List site under CERCLA. Grantee acknowledges that Grantor has provided it with a copy of the FFA.

B. Grantee, its successors and assigns, future owners, heirs, and executors agree that should any conflict arise between the terms of the ROD, in accordance with CERCLA, as they exist at the time a conflict arises, and the provisions of this Deed, the provisions of the ROD will prevail. Grantee, its successors and assigns, future owners, heirs, and executors, further agrees that notwithstanding any other provisions of this Deed, Grantor assumes no liability to Grantee, its successors and assigns, future owners, heirs, and executors should implementation of the FFA interfere with their use of the Property; and said parties shall have no claim on account of any such interference against the United States of America or any officer, agent, employee or contractor thereof, except to the extent that such claim arises out of negligent behavior on the part of the United States of America or any officer, agent, employee or contractor thereof.

C. All construction and development activities conducted on the Property by Grantee, its successors and assigns, future owners, heirs and executors, shall be conducted in a manner which is consistent with the ROD, or any amendment thereto. Grantor and Grantee or its successors and assigns may acknowledge in the MOA (with the written concurrence of the USEPA and IEPA), or subsequent amendments thereto, that certain activities described therein are not inconsistent with the ROD. Notwithstanding any other provision of this Article, nothing in this Article reduces or in any way circumvents the protections provided and obligations imposed by CERCLA.

D. All subsequent conveyances of the Property or any interests therein, by Grantee, its successors and assigns, future owners, heirs, and executors, shall be expressly subject to the rights and duties of Grantor to continue operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA, the FFA, or the ROD. Grantee, its successors and assigns, future owners, heirs, and executors, shall provide:

1. Initial Transfer Notice – reasonable notice (not less than 24 hours), to Grantor, USEPA and IEPA of any subsequent conveyance of the Property, or portions thereof (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities), to CenterPoint Industrial LLC (an Illinois limited liability company), CenterPoint Intermodal LLC (an Illinois limited liability company), CenterPoint Realty Services

Corporation (an Illinois corporation), CenterPoint Properties Trust, (a Maryland real estate investment trust), the State of Illinois, or the United States;

2. Pre-transfer Notice - 30 days written notice of any other transfer to parties not described immediately above (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities) to Grantor, USEPA, and IEPA;

3. Deed/lease - Within 14 days after the effective date of the transaction, Grantee, its successors and assigns, future owners, heirs, and executors, shall provide to Grantor, USEPA, and IEPA copies of the deed, lease, or other conveying instrument evidencing such transaction.

E. Notwithstanding any other provision herein, nothing in this document reduces or in any way circumvents the protections provided and obligations imposed by CERCLA Section 120(h).

#### **XIV. NON-DISCRIMINATION PROVISION:**

Grantee shall not discriminate upon the basis of race, color, religion, sex, age, disability, or national origin in the use, occupancy, sale, or lease of the Property or any part thereof, or in its employment practices conducted thereon in violation of the provisions of Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. Section 2000d); the Age Discrimination Act of 1975 (42 U.S.C. Section 6102); and the Rehabilitation Act of 1973, as amended (29 U.S.C. Section 794). Grantor shall be deemed a beneficiary of this assurance without regard to whether it remains the owner of any real estate or interest therein in the locality of the Property and shall have the sole right to enforce this covenant in any court of competent jurisdiction. This assurance shall not apply, however, to the lease or rental of a room or rooms within a family dwelling unit; nor shall it apply with respect to religion or to premises used primarily for religious purposes. A violation or breach of this non-discrimination provision by Grantee, its successors and assigns, future owners, heirs, and executors, shall not result in a forfeiture or reversion of title.

#### **XV. ANTI-DEFICIENCY ACT STATEMENT:**

The Army's obligation to pay or reimburse any money under this Deed is subject to the availability of appropriated funds to the Department of the Army, and nothing in this Deed shall be interpreted to require obligations or payments by the United States in violation of the Anti-Deficiency Act.

#### **XVI. NON-REVERTER:**

The title hereby conveyed is not qualified, defeasible, or subject to any special limitation, condition subsequent or executory limitation. The failure of Grantee or any successor owner or occupant of the Property (or any portion thereof) to comply with the covenants, restrictions, requirements, or other obligations set forth in this Deed shall not under any circumstances cause

a forfeiture of title to the Property, a termination of any estate hereby created, or any reversion thereof, it being agreed by Grantor that neither Grantor or any other party holds or possesses any reversion, possibility of reverter, common law right of entry for condition broken, or right or power of forfeiture or termination with respect to the Property, all such possibilities, rights, or powers being hereby expressly waived by Grantor.

POSSESSION is to be given upon the delivery and acceptance of this Deed.

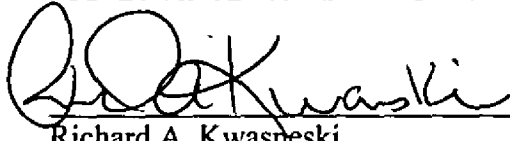


## APPROVAL AND ACCEPTANCE

On this 2d day of August, 2000, Joliet Arsenal Development Authority, Designee of the State of Illinois, and acting as the Agent of the State of Illinois for the purpose of accepting title to this real estate, does hereby accept and approve this Quit Claim Deed Of Conveyance and does hereby agree to all of the terms and conditions set forth therein.

IN TESTIMONY WHEREOF, witness the signature of the Grantee, acting by and through Richard A. Kwasneski, Executive Director, this 2d day of August, 2000.

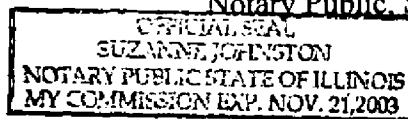
JOLIET ARSENAL DEVELOPMENT AUTHORITY

  
 Richard A. Kwasneski  
 Executive Director

STATE OF ILLINOIS           )  
   )SS  
 COUNTY OF Wine           )

The foregoing Quit Claim Deed of conveyance was acknowledged before me this 2nd day of August, 2000, by Richard A. Kwasneski, as Executive Director of Joliet Arsenal Development Authority.

  
 Notary Public, State of Illinois



My commission expires \_\_\_\_\_

Taxes To:  
 Joliet Arsenal Development  
 500 S. Water St  
 19  
 Wilmington, IL 60481

R2000086264

Exhibit A  
Memorandum of Agreement



MEMORANDUM OF AGREEMENT  
BETWEEN  
THE DEPARTMENT OF THE ARMY  
AND THE  
JOLIET ARSENAL DEVELOPMENT AUTHORITY  
FOR TRANSFER OF  
JOLIET ARMY AMMUNITION PLANT PROPERTY

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This Memorandum of Agreement (MOA) is made and entered into this 2d day of August, 2000, by and between the UNITED STATES OF AMERICA, acting by and through THE DEPUTY ASSISTANT SECRETARY OF THE ARMY (Installations & Housing), Office of the Assistant Secretary of the Army (Installations & Environment), pursuant to a delegation of authority from the SECRETARY OF THE ARMY (Army) having an address for purposes of this MOA at U.S. Army Corps of Engineers, Louisville District, P.O. Box 59, Attention: CELRL-RE-M, Louisville, Kentucky 40201-0059, and the JOLIET ARSENAL DEVELOPMENT AUTHORITY (JADA), as the designee of the State of Illinois, and acting as the agent of the State of Illinois for purposes of accepting title to some or all of the JOAAP Property (as defined below), a municipal Corporation of the State of Illinois, having its principal office located at 500 South Water Street, Wilmington, Illinois 60481.

WITNESSETH THAT:

WHEREAS, pursuant to the Illinois Land Conservation Act, National Defense Authorization Act For Fiscal Year 1996 (Public Law No. 104-106, Division B, Title XXIX, Subtitle B, Section 2923(a))(Federal Act), a portion of the military installation known as the Joliet Army Ammunition Plant (JOAAP) located in Will County, Illinois may be transferred to the State of Illinois.

WHEREAS, the Army operated the JOAAP from the early 1940s until 1977 producing military explosives and munitions. Various areas of the JOAAP were subsequently utilized by defense contractors under facility use contracts with the Army. The JOAAP is roughly divided from north to south by Illinois State Highway 53. The western portion of the JOAAP has been designated by the Army as the JOAAP "Manufacturing Area." The eastern portion of JOAAP has been designated by the Army as the "Load-Assemble-Package ('LAP') Area."

WHEREAS, Army operations have resulted in soil and groundwater contamination at portions of the JOAAP. Beginning in 1978, various environmental investigation and remedial activities were conducted at the JOAAP. Due to the presence of soil and groundwater contamination, the United States Environmental Protection Agency (USEPA) listed the Manufacturing Area on the Comprehensive Environmental Response, Compensation and Liability Act's (CERCLA) National Priority List (NPL) on July 21, 1987, and the LAP Area on the NPL on March 31, 1989. A more detailed history of the regulatory/environmental investigation and remediation activities at the JOAAP is contained in the Record of Decision (ROD) dated October 1998.

WHEREAS, on June 9, 1989, the Army entered into the Federal Facilities Agreement (FFA) with USEPA and the Illinois Environmental Protection Agency (IEPA). As set forth in the FFA, the Army is the lead government agency with primary responsibility for the investigation and remediation of the JOAAP. The FFA required

the Army to initiate and fund remedial investigation/feasibility study work, remedial design, and remedial action work at the JOAAP in accordance with the requirements of CERCLA. The Army is implementing remediation of portions of the JOAAP in accordance with the ROD in consultation with USEPA and IEPA. The affected portions of the JOAAP (called "operable units") and the possible remedial approaches are set forth in the ROD.

WHEREAS, the Army has constructed a remediation site, including a contaminated soil stockpile area, off of the JOAAP Property (as further defined in Article 1) for the purpose of storage and treatment of contaminated soil removed from the JOAAP Property.

WHEREAS, the Illinois General Assembly created JADA and empowered it to facilitate and promote the utilization of the JOAAP Property with diversified projects and land uses that will create new job opportunities and foster new economic development within the area ("Redevelopment" as further defined in Article 1). 70 ILCS § 508/5 (July 1, 1995).

WHEREAS, JADA is the recognized local redevelopment authority for the JOAAP Property and the State of Illinois has determined that JADA is the appropriate entity to accept title to the JOAAP Property, or portions thereof, from the Army.

WHEREAS, pursuant to the Federal Act, the Army may convey to the State of Illinois, the approximately 2,900 acres, or portions thereof, which comprise the JOAAP Property, including structures located thereon, subject to the limitations set forth in Section 2931 of the Federal Act regarding CERCLA Section 120(h) and other environmental laws.

WHEREAS, the Army acknowledges that the Initial Transferees (as defined in Article 1) have never owned, occupied, or operated any portion of the JOAAP Property and that the Initial Transferees have not caused or contributed to the Existing Contamination (as defined in Article 1). The Army further acknowledges that entry into or assignment of this MOA, and any actions taken in accordance therewith, does not constitute an admission of liability by the Initial Transferees.

WHEREAS, the Army may transfer the JOAAP Property to JADA in two or more separate transfers and same or similar deeds. A Finding of Suitability for Transfer (FOST) for the first transfer of a portion of the JOAAP Property was finalized in May of 1999. The Army will prepare an additional FOST (or FOSTs) for the remaining portions of the JOAAP Property as soon as the remaining portions meet remediation standards as set forth in the ROD. The Army and JADA anticipate that subsequent FOSTs will be prepared and finalized pursuant to the schedule attached hereto as Exhibit D.

WHEREAS, the Parties (as defined in Article 1) recognize that the Army's remediation activities and JADA's Redevelopment can and will proceed on a concurrent basis, subject to deed restrictions, following transfers of the various portions of the JOAAP Property from the Army to JADA.

WHEREAS, JADA is prepared to accept the transfer of the those portions of the JOAAP Property in which FOSTs have been issued by the Army in order that Redevelopment may commence in a timely fashion.

WHEREAS, this MOA is intended to accomplish, in part, the following:

- (i) Memorialize the rights, duties and obligations of the Army and JADA in relation to the Army's remediation responsibilities at the JOAAP Property and JADA's Redevelopment responsibilities (as defined in Article 1);
- (ii) Provide a procedural mechanism governing the manner in which issues or conditions that may arise during the Redevelopment are to be resolved by and between the Army and JADA;
- (iii) Provide a mechanism by which JADA may seek to remove certain deed restrictions and easements recorded in the chain of title for all or portions of the JOAAP Property following remediation of Existing Contamination located thereon;
- (iv) Provide a mechanism by which JADA may seek to remove portions of the JOAAP Property from the NPL upon completion of remediation of Existing Contamination (as defined in Article 1) located thereon;
- (v) Provide a Covenant Not to Sue from the Army to JADA in the form provided for in Article 7.01 of this MOA; and
- (vi) Provide for the assignability of any or all of the provisions of this MOA.

WHEREAS, the Army and JADA believe that Redevelopment of the JOAAP Property, as described in this MOA, constitutes a substantial benefit to the public interest and furthers the goals established by United States Congress and the Illinois General Assembly, including, in part, the following:

**Federal Act:** Federal law mandates that the Redevelopment replace all or part of the economic activity lost when former uses of JOAAP ceased. See National Defense Authorization Act For Fiscal Year 1996 (Public Law No. 104-106, Division B, Title XXIX, Subtitle B, Section 2923(a)); Illinois Joliet Arsenal Development Authority Act ("JADA Act").

**State Act:** The Illinois General Assembly created JADA and empowered it to facilitate and promote the utilization of the JOAAP Property, and to replace and enhance the economic benefits generated by former uses with diversified projects and land uses that will create new job opportunities and foster new economic development within the area. See 70 ILCS § 508/5 (July 1, 1995); and

**CERCLA:** The USEPA has issued a policy to promote the expeditious transfer and reuse of real property where the United States has ceased federal government operations. (USEPA's June 13, 1997, "Policy Towards Landowners and Transferees of Federal Facilities".) The purpose of the policy is to alleviate potential buyers' concerns over CERCLA liability by reducing the uncertainty regarding the potential for CERCLA enforcement actions, thereby increasing the marketability and redevelopment of such federal facilities.

WHEREAS, the JOAAP Property, or portions thereof, may be transferred to JADA as provided herein, and subject to the restrictions, reservations, conditions, and exceptions, all set forth and described herein and in the deeds thereto so transferred.

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements herein, the Parties hereto agree as follows:

#### ARTICLE 1 DEFINITIONS

The following definitions shall apply to this MOA:

1.01 "Applicable Law" shall include, but not be limited to, CERCLA and the ROD (and any amendments thereto or any subsequent RODs applicable to the JOAAP Property - including the Applicable or Relevant and Appropriate Requirements ("ARARs") listed therein).

1.02 "Army" shall mean the United States Department of the Army and any successor departments or agencies of the United States. The Army is the current owner of the JOAAP Property that is or may become subject to this MOA.

1.03 "Existing Contamination" shall mean any substance, petroleum product, chemical, compound, product, solid, gas, liquid, waste, byproduct, pollutant,

contaminant, or material which is described under applicable federal law as hazardous or toxic which is present at the JOAAP as of the date hereof and presents a risk to human health, safety or the environment given the anticipated use of the property (consistent with the industrial/commercial limitations mandated by the Initial Deed).

1.04 "FFA" shall mean the June 9, 1989 Federal Facility Agreement for JOAAP entered into by and among the FFA Parties. Pursuant to the FFA, the Army is the lead government agency with primary responsibility for the investigation and remediation of the JOAAP.

1.05 "FFA Parties" shall mean the Army, USEPA, and IEPA.

1.06 "Finding of Suitability to Transfer" (FOST) shall mean a determination by the Army, in consultation with the USEPA and the IEPA, that specified portions of the JOAAP Property are suitable for transfer by deed because the requirements of CERCLA Sections 120(h)(3) or 120(h)(4), as appropriate, have been met for those portions of the JOAAP Property, taking into account the intended use.

1.07 "Future Deeds" shall mean additional Quit Claim Deeds of Conveyance from the Army to JADA for portions of the JOAAP Property not included in the Initial Deed.

1.08 "Illinois" shall mean the State of Illinois, its departments, agencies, and instrumentalities.

1.09 "IEPA" shall mean the Illinois Environmental Protection Agency and any successors of IEPA.

1.10 "Initial Deed" shall mean the Quit Claim Deed of Conveyance from the Army to JADA for portions of the JOAAP Property initially transferred to JADA as more fully described in Exhibit A.

1.11 "Initial Transferees" shall mean exclusively the State of Illinois (including its agencies, branches and political subdivisions), the Joliet Arsenal Development Authority (a political subdivision, body politic, and municipal corporation established by the Illinois legislature), CenterPoint Industrial LLC (an Illinois limited liability company), CenterPoint Intermodal LLC (an Illinois limited liability company), CenterPoint Realty Services Corporation (an Illinois corporation), and CenterPoint Properties Trust, (a Maryland real estate investment trust).

1.12 "JADA" shall mean the Joliet Arsenal Development Authority, as the designee of the State of Illinois, and acting as the agent of the State of Illinois for purposes of accepting title to some or all of the JOAAP Property, and, for purposes of this MOA, any of its successors and assigns to the provisions, or portions of the provisions, of this



MOA. JADA is a political subdivision, body politic, and municipal corporation established by the Illinois legislature to facilitate and promote the utilization of portions of the JOAAP Property through Redevelopment. 70 ILCS § 508/5. JADA possesses all powers of a corporate body necessary and convenient to accomplish the purpose of the JADA Act, and its territorial jurisdiction extends over the JOAAP Property. 70 ILCS § 508/25(a). The State of Illinois has determined that JADA is the appropriate entity to accept, title to the JOAAP Property, or portions thereof, from the Army. All references to "JADA" also refer to JADA's successors and assigns.

1.13 "JADA Act" shall mean the Joliet Arsenal Development Authority Act 70 §ILCS 508/1 et seq.

1.14 "JOAAP" shall mean the approximate 23,500 acre former Joliet Army Ammunition Plant located in Will County, Illinois.

1.15 "JOAAP Property" shall mean the approximately 2,900 acres in Will County, Illinois designated for transfer from the Army to JADA as more fully defined in Exhibit A hereto. The JOAAP Property may also include easements necessary for Redevelopment.

1.16 "Ordnance and Explosive Waste" (OEW) shall have the same meaning as that provided in US Army Engineer Regulation (ER) 385-1-92, Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities, 18 March 1994 or successor authority. ER 385-1-92 currently defines OEW as Ordnance and Explosive Waste which is anything related to munitions designed to cause damage to personnel or material through explosive force, incendiary action or toxic effects. Soils with explosive constituents are not considered OEW unless the concentration is sufficient to be reactive and present an imminent safety hazard as determined by the US Army Corps of Engineers, Ordnance and Explosive Waste, Mandatory Center of Expertise. Explosive soil is commonly used to refer to propellants, explosives and pyrotechnics (PEP) which technically fall into the more general category of energetic material. These material are susceptible to initiation, or self-sustained energy release, when exposed to stimuli such as heat, shock, friction, chemical incompatibility or electrostatic discharge.

1.17 "Parties" shall mean the Army and JADA.

1.18 "Public Water Supply Development" shall mean the construction and/or expansion of one or more of the following at the JOAAP Property: surface water sources, wells, treatment works, intake structures and storage tanks, water mains, distribution piping, sanitary sewers, combined sewers and storm sewers, pumping stations, forcemains, trunk sewers, interceptor sewers, overflow points, sewage works, lagoons, excess flow treatment units, subsurface disposal fields, flood plains, storm

water retention basins, and any other structures or easements necessary to implement such Public Water Supply Development.

1.19 "Redevelopment" shall mean any commercial and industrial parks constructed at the JOAAP Property after the date of the Initial Deed, including, but not limited to, the Deer Run Redevelopment, Public Water Supply Development, Island City Development, and other development as indicated in Article 2 of this MOA.

1.20 "ROD" shall mean the October 1998 Record of Decision, Soil and Groundwater Operable Units, Manufacturing and Load-Assemble Package Areas, Joliet Army Ammunition Plant, Wilmington, Illinois and any subsequent amendments thereto.

1.21 "Termination Date" shall mean, for any portion of the JOAAP Property, that date upon which the subject portion of the JOAAP Property is formally deleted from the NPL by USEPA.

1.22 "United States" shall mean the United States of America, its departments, agencies, and instrumentalities.

1.23 "USEPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

1.24 "Unexploded Ordnance" (UXO) shall have the same meaning as that provided in US Army Engineer Regulation (ER) 385-1-92, Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities, 18 March 1994 or successor authority. ER 385-1-92 currently defines UXO as an item of explosive ordnance which has failed to function as designed or has been abandoned, discarded or improperly disposed of and is still capable of functioning causing damage to personnel or material.

## ARTICLE 2 REDEVELOPMENT

### 2.01 Deer Run Redevelopment.

A. JADA has undertaken plans for the development of a portion of the JOAAP Property commonly referred to as "Deer Run" (Deer Run Redevelopment). The Deer Run Redevelopment plans are attached hereto as Exhibit B and include, *inter alia*, an intermodal facility, a commercial and industrial park, a water treatment plant, a wastewater treatment plant, and a power plant. The Army has received and reviewed Exhibit B. Based on its review of these conceptual plans, the Army concludes, agrees, and acknowledges that, to the best of its knowledge, the Deer Run Redevelopment and all activities necessary to construct the Deer Run Redevelopment, including but not

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limited to site grading and infrastructure construction, are consistent with the ROD and Initial Deed and will not interfere with the implementation of the ROD. JADA acknowledges and understands, however, that this conclusion does not constitute a warranty and should not be construed as an agreement by the Army to assume any liability which may result from a later determination (as contemplated by Article 2.01(B) hereof) that the aforesaid plans and activities are not consistent with the ROD or Initial Deed or would interfere with implementation of the ROD.

B. In the event that the construction of the Deer Run Redevelopment violates the Initial Deed or interferes with the implementation of the ROD, the Army shall give JADA written notice of the manner and extent of the violation or interference. JADA shall have 90 days to respond to the Army's notice, including without limitation suggesting a means of curing the violation or mitigating the interference, either by revising the Deer Run Redevelopment, or proposing action(s) set forth in a Response Action Plan or Additional Environmental Actions in accordance with Article 4. JADA acknowledges, however, that the final determination regarding the sufficiency of any proposed cure or mitigation rests with the Army.

2.02 JADA's Option to Implement the Deer Run Redevelopment. The Army acknowledges that JADA is in no way bound to implement the Deer Run Redevelopment in accordance with the plans set forth in Exhibit B hereto, and that JADA may make changes to the Deer Run Redevelopment at its sole discretion; however, the Army shall not be deemed to have come to any conclusions or agreements regarding, or to have acknowledged the permissibility of, any development activities that deviate from the Deer Run Redevelopment as set forth in Exhibit B, except to the extent that such deviation is consistent with the ROD and/or deed restrictions.

2.03 Concept Plan for landfill cap. The Army has reviewed the Concept Plan ("Concept Plan") attached hereto as Exhibit C.

A. Based on its review of the Concept Plan, the Army concludes, agrees, and acknowledges that, to the best of its knowledge:

i. The Concept Plan and all activities necessary to implement the Concept Plan, including site access and transportation of materials, is consistent with the ROD and the Initial Deed. JADA acknowledges and understands, however, that this conclusion does not constitute a warranty or agreement by the Army to assume any liability which may result from a later determination (as contemplated by Article 2.03(A)(iv) hereof) that the aforesaid Concept Plan and all necessary activities to implement the Concept Plan is not consistent with the ROD and Initial Deed;

ii. Subject to the availability of funding, the Army will make available technical information for JADA's consideration in finalizing the Concept Plan to enable JADA to verify that the design is consistent with the ROD and/or deed restrictions; and

iii. The Concept Plan may be amended as a part of Redevelopment at any time in accordance with Article 11.06 below.

iv. In the event that the implementation of the Concept Plan violates the Initial Deed or interferes with the implementation of the ROD, the Army shall give JADA written notice of the manner and extent of the violation or interference. JADA shall have 90 days to respond to the Army's notice, including without limitation, suggesting a means of curing the violation or mitigating the interference, either by revising the Concept Plan, or proposing action(s) set forth in a Response Action Plan or Additional Environmental Actions in accordance with Article 4. JADA acknowledges, however, that the final determination regarding the sufficiency of any proposed cure or mitigation rests with the Army.

B. Subject to the availability of funds the Army will cooperate in coordination of activities and in providing information to complement the implementation of the Concept Plan and any amendments thereto. Such cooperation from the Army shall include, but not be limited to, the Army timely responding to any written request from JADA. Furthermore, where JADA's written request seeks some form of Army concurrence or approval, such concurrence or approval shall not be unreasonably withheld.

2.04 JADA's Option to Implement the Concept Plan. The Army acknowledges that JADA has the right but not the obligation to implement the Concept Plan, in its entirety, as set forth in Exhibit C hereto. The Army further acknowledges that JADA may make amendments to the Concept Plan subject to the provisions of Article 4 below. However, the Army shall not be deemed to have come to any conclusions or agreements regarding, or to have acknowledged the permissibility of, any site activities that deviate from the Concept Plan set forth in Exhibit C, except to the extent that the Army has otherwise given its opinion that such deviation is consistent with the ROD and/or deed restrictions. In the event JADA receives the necessary approvals to implement the Concept Plan from the FFA Parties, JADA shall carry the Plan to completion and prepare a closure report fulfilling the requirements of the ROD, unless otherwise agreed to by the Army and the other FFA Parties, as appropriate.

2.05 Public Water Supply Development. JADA shall be the owner and official custodian of all Public Water Supply Development at those portions of the JOAAP Property transferred to JADA. JADA may, at its sole option, undertake Public Water Supply Development, including the expansion of existing public water supplies, to

support Redevelopment or to service surrounding public water supply users, subject to groundwater deed restrictions.

2.06 Island City Development. JADA is in the process of evaluating various development options for the portion of the JOAAP Property commonly referred to as "Island City."

2.07 Easements. Within the limits of the JOAAP and adjacent Army property, the Army agrees to cooperate in granting any and all easements necessary for Redevelopment. JADA is responsible for procuring any and all easements required for Redevelopment located outside the JOAAP boundaries and adjacent Army property. JADA agrees to provide reasonable funding for the Army's assistance in obtaining easements within the limits of JOAAP and adjacent Army property.

2.08 Construction-Related Activities. The Army and JADA agree to coordinate their respective activities and to cooperate in completing any and all construction-related activities on conveyed property. Except as set forth in specific access agreements or easements, no construction will be allowed on Army owned property. Additional non-intrusive type work may be allowed on Army owned property by mutual agreement of the parties.

### ARTICLE 3 DEEDS

3.01 Multiple Transfers and Deeds. The Parties anticipate that the proposed transfer of the JOAAP Property will not occur as a single conveyance. Instead, as additional portions of the JOAAP Property are cleared through the Army's FOST process, they will be offered to JADA for transfer. Accordingly, there may be two or more Future Deeds of conveyance for the JOAAP Property. At the time this MOA was prepared and executed by the Parties, the initial transfer between the Army and JADA included approximately 2,030 acres (approximately 1,330 acres located in the Deer Run portion of the JOAAP Property and approximately 700 acres located in the Island City portion of the JOAAP Property)(Initial Deed). The Army anticipates that it will be ready to offer to transfer a remaining portion or portions of the JOAAP Property to JADA as further described and provided for in Exhibit D.

3.02 Future Deeds. Except to the extent that the land offered for transfer to JADA in subsequent conveyances is substantially different from the land which is included in the Initial Deed of conveyance between the Army and JADA, the Parties agree that Future Deeds will be substantially similar to the Initial Deed and that future portions of the JOAAP Property will transfer under substantially the same terms and conditions as reflected in the Initial Deed, including, without limitation, that the Conveyance Consideration (as defined in the first grammatical paragraph of Article I of the Initial

Deed) shall be zero for all subsequent conveyances of property located at the Deer Run portion of the JOAAP Property.

#### ARTICLE 4 REMEDICATION

4.01 Request for Deletion. For any area of the JOAAP Property that has been remediated to the standards designated in the ROD, JADA (either separately or together with the Army) may submit a request to USEPA for deletion of such area of JOAAP Property from the NPL. JADA shall notify the Army of its intent to seek deletion for the remediated area and shall provide the Army with copies of all correspondence with the USEPA relevant to the request for deletion. In the event that JADA submits a request for deletion from the NPL, the Army agrees that it will cooperate with and assist USEPA in their evaluation of the request.

4.02 Release of Deed Restrictions. At any time following the remediation of portions of the JOAAP Property to the industrial remediation goals established in the ROD, JADA may request that any deed restrictions be modified, terminated, or released as of record with regard to the remediated portion thereof. Such requests, together with documentation demonstrating that the Existing Contamination necessitating the restrictions has been remediated, shall be submitted to the Army for comment or objection, with copies to the USEPA and IEPA. Within ninety (90) calendar days of the Army's receipt of written concurrence to the release request from all FFA parties, the Army shall execute and record the release. The Army shall not object to the release or termination of the deed restrictions unless the removal of the restrictions in question will create a threat to human health, safety or the environment. The Army may, at any time, undertake to have deed restrictions terminated and released. This Article 4.02 does not apply to the land use restrictions and covenants enumerated in Article X of the Initial Deed concerning specific, identified tracts of land identified therein (or the same land use restrictions and covenants contained in Future Deeds).

4.03. Compliance with Laws. The Parties, and their authorized officers, employees, and representatives, shall exercise due care at the transferred JOAAP Property, or portions thereof, including, but not limited to, the Existing Contamination, and shall comply with all applicable federal laws and regulations and any local or state law and regulations if more stringent relating thereto.

4.04 Remediation Activities. As stated in the FFA, the Army is the lead agency for the remediation of Existing Contamination at the JOAAP and is the sole party liable for the costs of such remediation. The Army's current approved remediation plan, if executed pursuant to the timelines set forth therein, will result in the timely remediation of JOAAP and will facilitate the expeditious generation of FOSTs and subsequent offers of transfer of the remainder of the JOAAP Property to JADA in accordance with the general

schedule, provisions, and conditions set forth in Exhibit D. The Army has constructed a remediation site (including a contaminated soil stockpile area) to the west and off of the JOAAP Property, and is committed to removing the contaminated soil from Soil Remediation Units M5, M6 (uplands), and M7 within the JOAAP Property, subject to availability of appropriated funds, thereby making the additional JOAAP Property suitable for transfer pending the negotiation of a suitable Future Deed or Deeds pursuant to Exhibit D. Notwithstanding the foregoing, the Army recognizes the importance of the timely implementation of the Redevelopment and is committed to coordinating its activities with JADA. The Army, furthermore, recognizes and acknowledges that, upon the discovery of newly discovered Existing Contamination on transferred portions of the JOAAP Property, JADA may perform certain remedial work and proceed pursuant to the process set forth in Article 4.06 below.

4.05 Explosives/Reactivity and Impact Sensitive Soils. The Parties acknowledge that JOAAP has areas of explosive/reactive/impact sensitive soils. The Army has a Department of Defense Explosive Safety Board approved explosive safety submission plan (ESS), for environmental remediation purposes, as well as the necessary experience, knowledge and responsibility to handle these materials. Within the ESS are safety arcs (QD) that are required for protection of human safety. These QD will take precedence over other activities at the site in the event that explosive/reactive/impact sensitive soils are encountered. The Army will give JADA advance notice of QD placement and associated Army activities. These safety arcs may temporarily encroach on previously conveyed land. In the event that JADA should discover what appears to be OEW or UXO on the JOAAP Property, JADA shall not attempt to remove or destroy such items, will immediately stop any excavation or other work in the area, and notify the local Police Department and the District Engineer at the address set forth below in Article 11.11 of this MOA. The Army acknowledges its responsibility for OEW/UXO and will take prompt action upon notification of discovery.

4.06 Discovery of Contamination not identified in the ROD. In the event environmental contamination, other than that identified or addressed in the ROD, is discovered at those portions of the JOAAP Property transferred to JADA at concentrations or in quantities that require a response action under Applicable Law, the Army shall be notified as soon as practicable of such discovery. The following rights and responsibilities are established with respect to such newly discovered environmental contamination:

A. Existing Contamination. If the newly discovered environmental contamination, as referenced above, is Existing Contamination that was not identified in the ROD, JADA may, in cooperation with the FFA Parties, prepare a site assessment to determine if the newly discovered contamination needs to be remediated. If JADA determines that the newly discovered contamination needs to be remediated, JADA may, in cooperation with the FFA Parties, prepare a draft document which will detail the



planned response action (Response Action Plan). For purposes of review and comment by the FFA Parties, the draft Response Action Plan shall constitute a "Primary Document" under Article XIV of the FFA. Upon submittal to the FFA Parties, the draft Response Action Plan shall be subject to a thirty (30) day notice and comment period in accordance with Article XIV of the FFA. Within thirty (30) days of the close of the notice and comment period, JADA shall transmit to the FFA Parties a draft final Response Action Plan, which shall include JADA's response to all written comments received within the comment period. While the resulting draft final Plan shall be the responsibility of JADA, it shall be the product of consensus to the maximum extent possible. The draft final Response Action Plan shall become final thirty (30) days after the issuance thereof if the FFA Parties neither object nor otherwise respond. Once the Response Action Plan becomes final, JADA may, at its sole discretion and its own risk, proceed with implementing the Response Action Plan in compliance with Applicable Law. In the event that JADA remediates the newly discovered Existing Contamination in a manner consistent with:

- (i) the Response Action Plan;
- (ii) the ROD; and
- (iii) other Applicable Law, including the NPL.

the Army shall, in a timely and good faith manner, engage in the procedure described in Article 4.06(B) below.

B. Claims Process. As provided in Article 4.04 and this Article 4.06 and conditioned upon the availability of funds, the Army agrees to expeditiously process and coordinate with the Department of Justice and other appropriate agencies any claims by JADA for the costs and expenses arising out of each final Response Action Plan and its subsequent implementation.

(i) JADA shall give the Army at least fifteen (15) days notice of any material changes to the Response Action Plan or field work relating to the Response Action Plan. JADA shall give the Army the opportunity to attend project meetings and field work.

(ii) Upon completion of the work set forth in the Response Action Plan ("Work"), JADA shall submit to the Army a written completion report which provides the following information:

(a) a certification by JADA that the Work is consistent with the requirements set forth in Article 4.06(A);

(b) an itemization of the costs and expenses incurred by JADA in the performance of the Work;

(c) copies of invoices and proof of payment relating to performance of the Work;

(d) a certification by JADA that the claimed monies are reasonable, affordable, allocable and incurred by or on behalf of JADA in connection with the Work;

(e) releases from contractors, subcontractors, vendors, payees or other third parties charging costs and expenses to JADA for the Work; and

(f) any documentation or information requested by the Army, provided that the Army's request is timely and reasonable.

(iii) JADA acknowledges that the Army does not have authority to preapprove the claims anticipated by this Article; however, the Army hereby agrees to use its best efforts to coordinate with all the appropriate instrumentalities of the United States Government to diligently review, process and, where appropriate, satisfy the claim(s) for financial reimbursement.

C. Other Contamination/New Releases. If the newly discovered contamination is not Existing Contamination, JADA may pursue the responsible party to address the contamination as required by Applicable Law.

4.07 Additional Remediation and Amendments to the ROD on transferred property. With respect to transferred property, JADA may conduct additional actions, including, but not limited to, environmental investigations, remediation activities, and/or installing engineering controls (collectively Additional Environmental Actions) with respect to Existing Contamination. To the extent that such Additional Environmental Actions necessitate the issuance of an Explanation of Significant Differences (ESD), as that term is defined at 40 CFR § 300.435, et seq., or the amendment of the ROD, the Army will promptly issue such ESD or pursue such ROD amendment with concurrence of the other FFA Parties. In order to conduct such Additional Environmental Actions, each of the following steps shall be performed:

A. Prior to conducting Additional Environmental Action relating to Existing Contamination, JADA shall forward a detailed written request together with supporting information and documentation to the Army;

B. The written request to conduct the Additional Environmental Action (together with supporting information and documentation) shall be submitted by the Army to the FFA Parties for review and written approval;

C. If the Additional Environmental Action is approved by the Army, JADA may, at its sole option and at its sole expense, conduct the Additional Environmental Action; and

D. Upon the successful completion of an approved Additional Environmental Action, the Army shall coordinate with the other FFA Parties to release and/or modify any relevant deed restrictions contained in the Initial Deed (or Future Deeds) for the area of the JOAAP Property at issue as provided in Article 4.02 herein. The referenced release or modification shall not be unreasonably withheld.

4.08 Waste Generated by Remedial Activities. With regard to all Existing Contamination, the Army is and shall remain the "generator", as that term is defined in CERCLA and RCRA. To the extent that JADA is required to dispose of waste offsite due to the presence of Existing Contamination, the Army shall be deemed the "generator" of all such waste and shall be identified as such on any manifests which accompany such waste. The Army reserves the right to review analytical waste characterization profiles and waste characterization documentation. The Army shall promptly execute appropriate waste manifests for all Existing Contamination-containing waste to be transported or disposed of. The Army contact person responsible for executing waste manifests is identified in Article 11.11 below.

## ARTICLE 5 ACCESS

5.01 Right of Access. The Army has reserved a perpetual easement and right of access to the JOAAP Property as set forth in Article VIII.A.4 and B.3 of the Initial Deed and as stated in P.L. 104-106. The Army shall make all practical efforts in exercising its right of access so that it does not result in significant additional expense to JADA, or significant disruption to the Redevelopment and subsequent operations at the JOAAP Property and the Army is not liable for any costs incurred by other parties in the rightful, necessary and non-negligent exercise of that easement and right of access.

5.02 Notice of Access. In the absence of an immediate threat to human health, safety or the environment, the Army agrees to give JADA seven (7) days prior written notice of their intent to enter those portions of the JOAAP Property transferred to JADA. This written notice shall include a description of the time and date for the proposed visit, the personnel involved, and the proposed activities. JADA shall have the right to accompany (or have a representative accompany) the Army (or the Army's representatives) during such periods of access. In the case of an immediate threat to

human health, safety or the environment, the Army shall give JADA as much advance notice of access as possible. In the event that JADA requires access to unconveyed portions of JOAAP Property, JADA shall make written request to the Army per the terms and conditions stipulated in the Right of Access granted to JADA, dated May 14, 1999.

5.03 Exercise of Right of Access. In the event that the Army determines that invasive or disruptive activities are necessary in order to address Existing Contamination at the portions of the JOAAP Property transferred to JADA after the date hereof, in the absence of an immediate threat to human health, safety or the environment, the Army shall give JADA at least thirty (30) days written notice of its intent to perform invasive or disruptive activities. Said notice shall include a detailed description of the condition necessitating the invasive or disruptive activities, and the actions the Army proposes. Within thirty (30) days of receiving said notice from the Army, JADA may propose to perform response actions (as contemplated by Article 4.06) or Additional Environmental Actions (as contemplated by Article 4.07) to address the Existing Contamination necessitating the invasive or disruptive activities proposed by the Army. Upon receiving written consent from the Army, JADA shall proceed to implement its proposed actions in compliance with Article 4.06 or 4.07, as applicable. JADA acknowledges, however, that the final determination regarding the sufficiency of any response actions or Additional Environmental Actions proposed by JADA to address Existing Contamination rests with the Army.

#### ARTICLE 6 CONSISTENCY

6.01. Consistency with the ROD and the Initial Deed. This Agreement is deemed by the Parties to be consistent with the ROD, as set forth in its present form as of the date hereof, P.L. 104-106, the Initial Deed, and the intended future industrial land use. In the event of any inconsistencies between the MOA and the foregoing documents, the Parties agree to work cooperatively to achieve consistency between the MOA and the foregoing documents.

6.02 Consistency with Future Deeds. It is the intent of the Parties that Future Deeds will be drafted to be consistent with this Agreement, the ROD, the Initial Deed, P.L. 104-106 and the intended future industrial land use.

#### ARTICLE 7 COVENANT NOT TO SUE, CONTRIBUTION PROTECTION AND RESERVATION OF RIGHTS

7.01 Covenant Not to Sue. The Army agrees not to initiate a suit or to take any other civil or administrative action against JADA or its authorized officers, employees, representatives, assignees, successors in interest, lessees, or sublessees with respect

to matters covered under Applicable Law and associated with the Existing Contamination; provided however, that this covenant not to sue shall not bar an action against any party which through its own actions: (1) violates the deed restrictions or covenants or notices set forth in the deed; or (2) exacerbates the Existing Contamination and otherwise increases the costs associated with the Army's remediation of the Existing Contamination. It is further understood that the covenant agreed to under this Article is limited to the United States Army, does not constitute a CERCLA Section 122(f) Covenant, and is not intended to bias or bind the actions of any agency or instrumentality of the United States Government other than the Army.

7.02 (a) Pre-conveyance liability acknowledgement. The Army acknowledges that none of the Initial Transferees shall be held or deemed to be responsible or liable for the Existing Contamination or any cost or action associated therewith solely by reason of activities at or relating to the JOAAP Property prior to conveyance by the Army.

(b) Post-conveyance liability acknowledgement. The Army acknowledges that neither JADA, its authorized officers, employees, representatives assignees, successors in interest, lessees, sublessees, or its authorized officers, employees, or any future owners of the JOAAP Property, or portions thereof, shall be held or deemed to be responsible or liable for the Existing Contamination, or any cost or action associated therewith, merely by taking title to or occupying the JOAAP Property, or portions thereof.

(c) The acknowledgments in Article 7.02(a) and (b) are not intended to bias or bind the conclusions of any agency or instrumentality of the United States Government other than the Army.

7.03 Third Party Liability. The Army reserves its right to assert any claim or cause of action relating to Existing Contamination, whether administrative or judicial, civil or criminal, past or future, in law or in equity, which it may have against any person, firm corporation, or other entity, except to the extent specifically limited or settled by this MOA. Furthermore, except as provided in this MOA, nothing in this MOA is intended to limit the right of the Army to compel parties to pay for response actions at the JOAAP Property, or portions thereof. The Covenant Not to Sue and other protection agreed to by the Army in this Article 7 do not apply to the following individuals and entities, whether or not such individuals or entities become successors in interest or assignees of this MOA:

- A. RUST Engineering;
- B. DuPont;
- C. U.S. Rubber; and
- D. Uniroyal.

## ARTICLE 8

## PARTIES BOUND AND TRANSFER OF COVENANTS

8.01 Parties Bound. This MOA shall apply to and be binding upon the Army and JADA. The Army and JADA agree that to the extent JADA assigns some or all of its rights and obligations under this MOA to other parties, any such assignee or successor shall, to the extent so assigned, assume the rights and obligations of this MOA and thereupon be bound to this MOA. Each signatory to this MOA represents that he or she is fully authorized to enter into the terms and conditions of this MOA and to legally bind such Party. Prior to, or simultaneous with, any assignment or transfer of the MOA thereof, the assignee must consent in writing to be bound by the terms of this MOA, or portions thereof, so assigned.

8.02 Assignment. Upon transfer of title of the JOAAP Property (or any portion thereof) to JADA, JADA shall have the right, subject to requirements of Article 8.01 and the limitations of Article 8.03, to assign this MOA (or portions thereof) and all (or portions of) the rights, benefits, privileges, protections, duties, obligations, and powers established hereunder to any person, firm, corporation, or other entity, and any such assignee shall be entitled to, and responsible for, all of the rights, duties, obligations, and powers of JADA which are specifically established by, or inure from this MOA, or the portions thereof so assigned by JADA. By proper assignment from JADA, such assignee may among other things:

A. Release the Assignor from any and all duties and obligations imposed upon the Assignor by this MOA relating to the transfer or lease of some or all of the JOAAP Property conveyed or leased by the Assignor to the Assignee; and

B. Except where otherwise specifically limited, succeed to and assume all of the rights, benefits, privileges, protections, duties, obligations, and powers of JADA under the MOA (or portions thereof so assigned) and shall, for all purposes hereof, be substituted as and be deemed to be the equivalent of JADA for the purposes of this MOA or the portions thereof which are assigned.

8.03 Assignment Limits. Any rights, benefits, privileges, protections, duties, obligations, and powers established under this MOA and assigned by JADA shall be strictly limited to those specifically enumerated in writing by JADA. At least thirty (30) days prior to executing any assignment, other than among the Initial Transferees and the United States, JADA shall provide the Army with written notice of the assignment including a description of the matters so assigned. In regard to the Initial Transferees and the United States, JADA shall provide the Army with reasonable notice (at least 24 hour notice) of assignments made pursuant to this Article 8. Assignment of the obligation to provide Annual Reports, as set forth in 9.04, will require the written

concurrence of the Army. Transfer of title and assignment of rights and obligations under this agreement shall not relieve JADA of obligations to the Army imposed by law.

#### ARTICLE 9

#### DEED RESTRICTION VIOLATIONS AND ENFORCEMENT

9.01 Deed Restriction Violations. To the extent that future violation(s) of the deed restrictions or covenants set forth in the Initial Deed or Future Deeds necessitate any investigation and/or remediation of Existing Contamination, JADA, subject to Article 4.06, shall take such actions as reasonably necessary to have the party responsible for violating the deed restrictions or covenants in question perform such investigation and/or remediation at the responsible party's sole costs and expense pursuant to the procedures set forth in Article 4.

9.02 Enforcement. Except as otherwise provided for in Article 7, to the extent the responsible party fails to perform the necessary investigation and/or remediation, the Army reserves all rights and actions available to it by law, including without limitation, CERCLA.

9.03 Limitations. Except as expressly required in Articles 9.01 and 9.02 hereto, JADA shall not be responsible for any investigation or remediation arising out of violation(s) of the deed restrictions or covenants in the Initial Deed, or Future Deeds, to the extent that said violation(s) occur after the date on which JADA is no longer the current property owner of record, provided that JADA did not in any way cause or contribute to the violation.

9.04 Annual Reports. JADA shall execute an annual report, beginning on the first anniversary of the date hereof and annually on the same date thereafter, outlining the progress on the Redevelopment over the prior year and stating that, to the best of JADA's knowledge, it has not violated any of the deed restrictions or covenants set forth in the Initial Deed (or Future Deeds if such be the case). The annual report is due within 30 days after the first anniversary of the execution of the Initial Deed and annually on the same schedule thereafter. The annual report will be sent to the Army with copies to the other FFA Parties. Such annual reports will be required until the earlier of: (i) the completion of the Army's required remediation activities at the JOAAP Property; (ii) the mutual agreement of the Army and JADA; or (iii) the date on which the JOAAP Property, or relevant portions thereof, are deleted from the NPL pursuant to Article 4.01 of this MOA or otherwise.



ARTICLE 10  
NOTICE OF CLAIMS

10.01 Notice of Claims.

A. The Army agrees that with respect to any suit or claim for contribution brought by it for matters related to the Existing Contamination, it will notify JADA in writing no later than sixty (60) days prior to the initiation of such suit or claim. Failure to provide timely notice shall not constitute a jurisdictional bar to filing any suit or claim for contribution.

B. JADA agrees that with respect to any suit or claim for contribution brought against it for matters related to the Existing Contamination, it will notify the Army in writing within sixty (60) days of service of the complaint on them. Failure to provide timely notice shall not constitute a jurisdictional bar to filing any suit or claim for contribution.

ARTICLE 11  
MISCELLANEOUS

11.01 Army Outgrants. For any outleased JOAAP Property subsequently conveyed to JADA, on which JADA undertakes actions disruptive to lessee(s) prior to completion of the lease term, JADA shall make complete reparations to the affected lessee(s) at no cost to the Army. JADA recognizes that any JOAAP Property that the Army has not transferred to JADA by January 2000, or by January of subsequent years, may be outleased by the Army, on a year-to-year basis, for agricultural purposes for the forthcoming year.

11.02 In Writing Requirements. All notices or other communications permitted or required to be given under this MOA shall be effective only when in writing and shall be deemed to have been duly given:

A. On the date of service if served personally on the Party's designated representative;

B. Within 24 hours after sending by facsimile; or

C. Within four business days after mailing by first class mail, postage prepaid, in all events for giving notice, the notice shall be properly addressed to the address set forth in Article 11.11 below, or any other address that the Party may designate by written notice to the other parties.

11.03 Force Majeure. A Party shall be excused from performance of its obligations under this MOA in the event of and to the extent that such performance is delayed or prevented by the following:

- A. An act of God or act of war;
- B. Riots or other civil disturbances;
- C. Compliance with any emergency order of any governmental authority, or

D. Any other event that was not reasonably foreseeable and which is beyond that Party's control (collectively referred to as Excusing Circumstances). Any Party so prevented shall promptly notify the other Parties of the occurrence (or anticipated occurrence) of any Excusing Circumstance affecting it. If requested, the Party so prevented shall supply documentation of the Excusing Circumstance to the other Parties. Any Party affected by an Excusing Circumstance shall, prior to any suspension of performance of its obligations under this MOA, take all reasonable precautions to protect the public health, welfare, and environment and to mitigate any potential injury, liability, or damages.

11.04 Computation Period. Except where the context expressly requires a different meaning, all references to days in a month shall mean calendar days; provided, however, that the last day, if it falls on a Saturday, Sunday, or federal or state holiday at the JOAAP Property, shall be deemed to fall on the next business day.

11.05 Agreement to Perform Necessary Acts. Each Party to this MOA agrees to perform any further acts and execute and deliver any documents that may be reasonably necessary to carry out the provisions of this MOA. If any condition of this MOA is not met by either Party, the other Party may forbear performance until such condition is met.

11.06 Amendments. The provisions of this MOA may be waived, altered, amended, or repealed, in whole or in part, only by mutual consent, in writing, by the Army and JADA. Any proposed amendments to this MOA by either party shall be reviewed and responded to within thirty (30) business days of receipt.

11.07 Validity of MOA. It is intended that each Article of this MOA shall be viewed as separate and divisible, and in the event that any Article or part thereof shall be held to be invalid, the remaining Articles and parts shall continue to be in full force and effect.

11.08 Governing Laws. This MOA, as to its construction and interpretation, shall be construed in accordance with, and governed by, the laws of the United States and the State of Illinois.

11.09 Disputes Between the Parties. The Parties agree that in the event that any dispute or issue over the terms or the provisions of this MOA arises they will make good faith efforts to resolve the dispute or issue without resort to litigation. Such efforts shall include, but not be limited to, meeting(s) attended by each Party's representative(s) empowered to resolve the dispute. The Parties agree that before either Party commences an action against the other Party, they will consider the use of alternate forms of dispute resolution. Pending the outcome of such dispute resolution, both parties shall take immediate steps to mitigate any damages.

11.10 Anti-Deficiency Statement. The Army's obligation to expend, pay or reimburse any money under this MOA is subject to the availability of appropriated funds to the Department of the Army, and nothing in this MOA shall be interpreted to require obligations or payments by the United States in violation of the Anti-Deficiency Act.

#### 11.11 Notices and Submissions

A. For the Army: Mr. Art Holz, Commander's Representative or designee  
Joliet Army Ammunition Plant  
29401 State Route 53  
Wilmington, Illinois 60481-8879

Copy to: District Engineer  
U.S. Army Corps of Engineers  
Louisville District  
500 Dr. Martin Luther King Jr. Place  
Louisville, Kentucky 40202

B. Army contact responsible for executing waste manifests:

Commander's Representative or his designee  
Joliet Army Ammunition Plant  
29401 State Route 53  
Wilmington, Illinois 60481-8879

C. For JADA: Mr. Richard A. Kwasneski, Executive Director,  
Joliet Arsenal Development Authority  
500 South Water Street,  
Wilmington, Illinois 60481


Copy to: Mr. Michael K. Ohm  
Bell, Boyd & Lloyd  
Three First National Plaza  
70 West Madison Street  
Suite 3300  
Chicago, Illinois 60602-4207

11.12 Effective Date. The effective date of this MOA shall be \_\_\_\_\_, 2000.

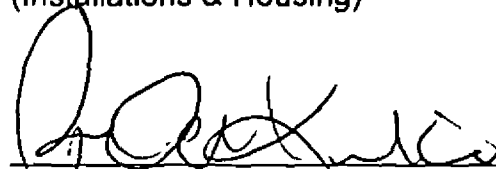
11.13 Nothing in this MOA, or the Exhibits attached hereto, is intended to impact, regulate, or otherwise restrict in any manner, JADA's ability to seek to establish and oversee:

- A. Tax Increment Financing Districts;
- B. Brownfields tax credits;
- C. Grants for the financing of construction, improvement, or extension of public water supplies on the JOAAP Property;
- D. Its revenue bonding authority.

UNITED STATES OF AMERICA:

  
Paul W. Johnson  
Deputy Assistant Secretary of the Army  
(Installations & Housing)

FOR JADA:

  
Mr. Richard A. Kwasneski, Executive Director  
Joliet Arsenal Development Authority

R2000086264

Exhibit A



ALL STATE LEGAL 800 327 6510 EDN11 RECYCLED

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EXHIBIT A

Legal Descriptions & Maps For JOAAP Property





# PLAT OF SURVEY--ISLAND CITY INDUSTRIAL PARK

EXHIBIT A - TRACT 2

## TOTAL PARCEL

THAT PART OF SECTIONS 16 AND 17, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE SOUTH 88 DEGREES 23 MINUTES 03 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 18, A DISTANCE OF 25.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 1 DEGREE 18 MINUTES 35 SECONDS WEST ALONG THE WEST LINE OF SAID SECTION 18, A DISTANCE OF 2748.05 FEET; THENCE NORTH 60 DEGREES 33 MINUTES 50 SECONDS WEST 2029.30 FEET; THENCE SOUTH 88 DEGREES 02 MINUTES 03 SECONDS WEST 1808.87 FEET TO THE SOUTHEAST CORNER OF THE WILL COUNTY LANDFILL PARCEL; THENCE ALONG THE SOUTHERLY BOUNDARY OF SAID WILL COUNTY LANDFILL PARCEL AS FOLLOWS: SOUTH 88 DEGREES 02 MINUTES 03 SECONDS WEST 818.81 FEET; SOUTH 1 DEGREE 18 MINUTES 35 SECONDS EAST 1138.04 FEET; NORTH 87 DEGREES 43 MINUTES 15 SECONDS WEST 40.03 FEET; SOUTH 87 DEGREES 48 MINUTES 08 SECONDS WEST 2780.33 FEET; SOUTH 9 DEGREES 08 MINUTES 32 SECONDS EAST 81.85 FEET; SOUTH 87 DEGREES 48 MINUTES 03 SECONDS WEST 1730.80 FEET; AND SOUTH 28 DEGREES 44 MINUTES 04 SECONDS WEST 1438.04 FEET TO THE WEST LINE OF THE AFORESAID SECTION 17; THENCE SOUTH 1 DEGREE 31 MINUTES 23 SECONDS EAST SAID WEST LINE 1282.35 FEET TO THE SOUTH LINE OF SAID SECTION 17; THENCE EASTERLY ALONG SAID SOUTH LINE AND EASTERLY ALONG THE SOUTH LINE OF THE AFORESAID SECTION 16 TO THE POINT OF BEGINNING; ALSO THAT PART OF SECTION 18, IN THE AFORESAID TOWNSHIP AND RANGE DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 18, A DISTANCE OF 3785.50 FEET; THENCE NORTH 1 DEGREE 48 MINUTES 57 SECONDS WEST 4097.83 FEET; THENCE SOUTH 88 DEGREES 29 MINUTES 53 SECONDS WEST 1080.88 FEET; THENCE NORTH 80 DEGREES 02 MINUTES 18 SECONDS WEST 281.93 FEET; THENCE NORTH 1 DEGREE 31 MINUTES 48 SECONDS WEST 1153.25 FEET; THENCE NORTH 88 DEGREES 28 MINUTES 53 SECONDS EAST 1338.04 FEET TO THE AFORESAID WEST LINE OF THE EAST 25.00 FEET OF SECTION 16; THENCE SOUTH 1 DEGREE 18 MINUTES 35 SECONDS EAST ALONG SAID WEST LINE 1301.81 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS, CONTAINING 354.75 ACRES MORE OR LESS

## PARCEL A

THAT PART OF SECTION 18, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 18, A DISTANCE OF 3785.50 FEET; THENCE NORTH 1 DEGREE 48 MINUTES 57 SECONDS WEST 4097.83 FEET; THENCE NORTH 88 DEGREES 29 MINUTES 53 SECONDS WEST 1080.88 FEET; THENCE NORTH 80 DEGREES 02 MINUTES 18 SECONDS WEST 281.93 FEET; THENCE NORTH 1 DEGREE 31 MINUTES 48 SECONDS WEST 1153.25 FEET; THENCE NORTH 88 DEGREES 28 MINUTES 53 SECONDS EAST 1338.04 FEET TO THE EAST LINE OF AFORESAID SECTION 18; THENCE SOUTH 1 DEGREE 31 MINUTES 23 SECONDS EAST ALONG SAID EAST LINE 3846.12 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS, CONTAINING 354.75 ACRES MORE OR LESS

## PARCEL C

THAT PART OF SECTION 18, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE SOUTH 88 DEGREES 23 MINUTES 03 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 18, A DISTANCE OF 25.00 FEET; THENCE NORTH 1 DEGREE 18 MINUTES 35 SECONDS WEST ALONG THE WEST LINE OF THE EAST 25.00 FEET OF SAID SECTION 18, A DISTANCE OF 1128.84 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 88 DEGREES 29 MINUTES 53 SECONDS WEST 1080.88 FEET; THENCE NORTH 80 DEGREES 02 MINUTES 18 SECONDS WEST 281.93 FEET; THENCE NORTH 1 DEGREE 31 MINUTES 48 SECONDS WEST 1153.25 FEET; THENCE NORTH 88 DEGREES 28 MINUTES 53 SECONDS EAST 1338.04 FEET TO THE AFORESAID WEST LINE OF THE EAST 25.00 FEET OF SECTION 16; THENCE SOUTH 1 DEGREE 18 MINUTES 35 SECONDS EAST ALONG SAID WEST LINE 1301.81 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS, CONTAINING 35.43 ACRES MORE OR LESS

## PARCEL B

(REFERRED TO IN DEED AS TRACT NO. 2)

LEGAL DESCRIPTION OF TRACT NO. 2:

THAT PART OF SECTIONS 16 AND 17, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN FLORENCE TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 16; THENCE SOUTH 88 DEGREES 23 MINUTES 03 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 16, A DISTANCE OF 25.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 01 DEGREE 18 MINUTES 35 SECONDS WEST ALONG THE WEST LINE OF SAID SECTION 16, A DISTANCE OF 1128.84 FEET; THENCE SOUTH 88 DEGREES 29 MINUTES 53 SECONDS WEST 1080.88 FEET; THENCE NORTH 80 DEGREES 02 MINUTES 18 SECONDS WEST 281.93 FEET; THENCE NORTH 1 DEGREE 31 MINUTES 48 SECONDS WEST 1153.25 FEET; THENCE NORTH 88 DEGREES 28 MINUTES 53 SECONDS EAST 1338.04 FEET TO THE AFORESAID WEST LINE OF THE EAST 25.00 FEET OF SECTION 16; THENCE SOUTH 1 DEGREE 18 MINUTES 35 SECONDS EAST ALONG SAID WEST LINE 1301.81 FEET; THENCE NORTH 88 DEGREES 23 MINUTES 03 SECONDS WEST 1138.04 FEET TO THE AFORESAID WEST LINE OF THE EAST 25.00 FEET OF SECTION 16; THENCE NORTH 01 DEGREE 18 MINUTES 35 SECONDS WEST ALONG SAID WEST LINE 218.50 FEET; THENCE NORTH 88 DEGREES 23 MINUTES 03 SECONDS WEST 202.93 FEET; THENCE SOUTH 88 DEGREES 02 MINUTES 03 SECONDS WEST 818.81 FEET; THENCE NORTH 87 DEGREES 43 MINUTES 15 SECONDS WEST 40.03 FEET; THENCE SOUTH 87 DEGREES 48 MINUTES 08 SECONDS WEST 2780.33 FEET; SOUTH 9 DEGREES 08 MINUTES 32 SECONDS EAST 81.85 FEET; SOUTH 87 DEGREES 48 MINUTES 03 SECONDS WEST 1730.80 FEET; AND SOUTH 28 DEGREES 44 MINUTES 04 SECONDS WEST 1438.04 FEET TO THE WEST LINE OF THE AFORESAID SECTION 17; THENCE SOUTH 1 DEGREE 31 MINUTES 23 SECONDS EAST SAID WEST LINE 1282.35 FEET TO THE SOUTH LINE OF SAID SECTION 17; THENCE EASTERLY ALONG SAID SOUTH LINE AND EASTERLY ALONG THE SOUTH LINE OF THE AFORESAID SECTION 16 TO THE POINT OF BEGINNING; CONTAINING 750.81 ACRES, MORE OR LESS

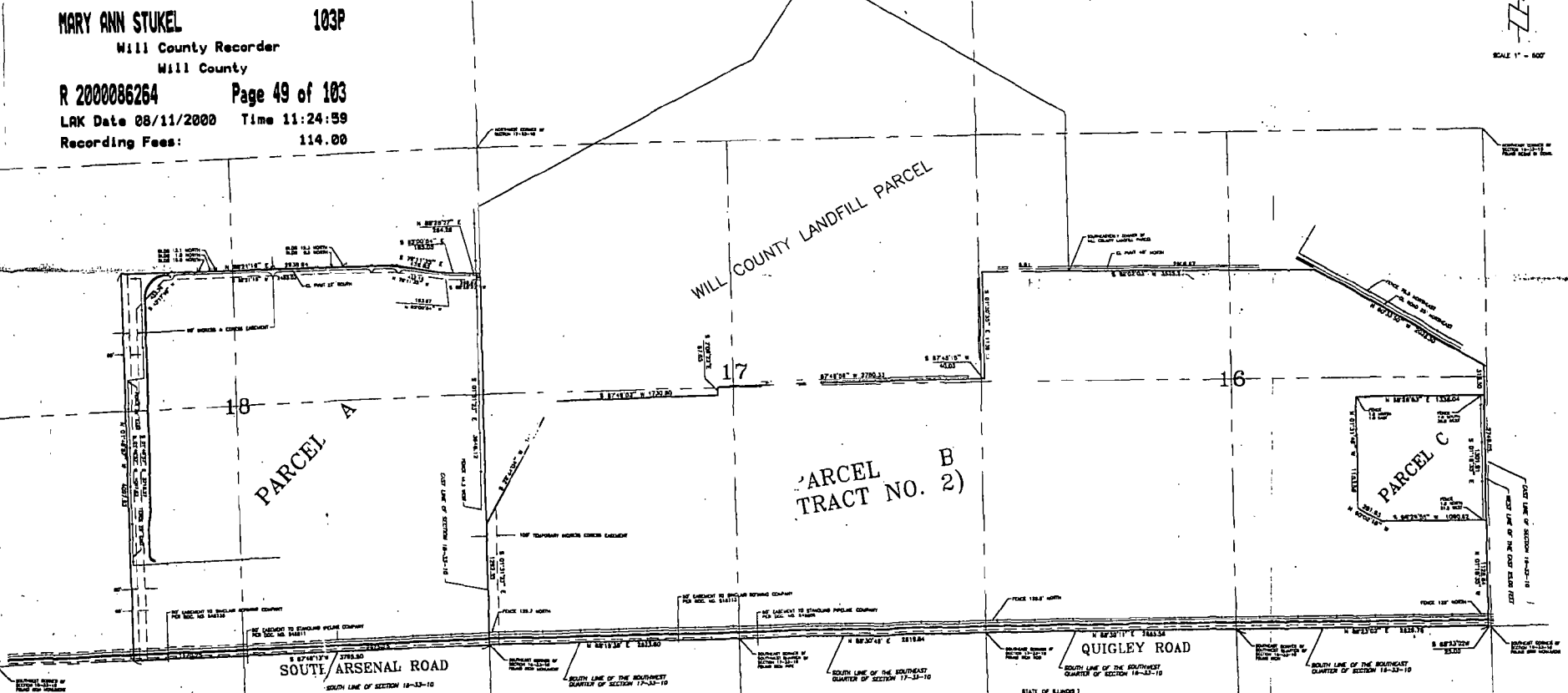
MARY ANN STUKEL 103P  
Will County Recorder  
Will County  
R 2000086264 Page 49 of 103  
LAK Date 08/11/2000 Time 11:24:59  
Recording Fees: 114.00

WILL COUNTY LANDFILL PARCEL

PARCEL B  
TRACT NO. 2)

PARCEL C

PARCEL A



QUIGLEY ROAD

SOUTH ARSENAL ROAD

STATE OF ILLINOIS

COUNTY OF WILL

I, GEORGE H. PARKER, a PROFESSIONAL LAND SURVEYOR IN THE STATE OF ILLINOIS, DO HEREBY CERTIFY THAT I HAVE PERSONALLY EXAMINED THE SURVEY AND THE PLAT OF THE LAND DESCRIBED IN THE FOREGOING CAPTION AND HAVE FOUND THAT THE SAME IS A CORRECT REPRESENTATION THEREOF, DATED AT JOLIET, ILLINOIS, THIS 10TH DAY OF JULY, 2000, A.D.

ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 3387



GEOTECH INC.  
CONSULTING ENGINEERS - LAND SURVEYORS  
107 EDWARDS DRIVE 815-730-1010 JOLIET, IL 60433  
PROJECT: ALABAMA FIELD BOOK NO. 491  
DRAWN BY: J.S. DATE: 08/11/2000 SCALE: 1"=800' DATE: 08/11/2000  
CHECKED BY: J.S. DATE: 08/11/2000 SCALE: 1"=800' DATE: 08/11/2000  
COMPARE THIS PLAT WITH OUR RECORDS AND RECORDED REPORTS FOR DISCREPANCIES

R2000086264

## PLAT OF SURVEY

## LEGAL DESCRIPTION OF PROPERTY--TRACT NO. 3

THAT PART OF THE SOUTHEAST QUARTER OF SECTION 15, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE SOUTH 89 DEGREES 26 MINUTES 27 SECONDS WEST ALONG THE SOUTH LINE OF SAID SOUTHEAST QUARTER 702.00 FEET; THENCE NORTH 1 DEGREE 33 MINUTES 33 SECONDS WEST 1417.31 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 38 MINUTES 15 SECONDS WEST 201.25 FEET; THENCE NORTH 29 DEGREES 23 MINUTES 45 SECONDS WEST 448.00 FEET; THENCE NORTH 60 DEGREES 36 MINUTES 15 SECONDS EAST 742.00 FEET; THENCE SOUTH 29 DEGREES 23 MINUTES 45 SECONDS EAST 448.00 FEET; THENCE SOUTH 89 DEGREES 38 MINUTES 15 SECONDS WEST 540.75 FEET TO THE POINT OF BEGINNING, IN WILL COUNTY, ILLINOIS.

MARY ANN STUKEL

103P

Will County Recorder

Will County

R 2000086264

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LAK Date 08/11/2000

Time 11:24:59

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114.00

## WATERLINE EASEMENT DESCRIPTION

THAT PART OF THE SOUTHWEST QUARTER OF SECTION 14, AND THAT PART OF THE SOUTHEAST QUARTER OF SECTION 15, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER OF SECTION 15; THENCE SOUTH 89 DEGREES 26 MINUTES 27 SECONDS WEST ALONG THE SOUTH LINE OF SAID SOUTHEAST QUARTER 48.88 FEET; THENCE NORTH 24 DEGREES 55 MINUTES 00 SECONDS WEST 1584.00 FEET; THENCE NORTH 80 DEGREES 38 MINUTES 15 SECONDS EAST 200.81 FEET; THENCE SOUTH 24 DEGREES 55 MINUTES 00 SECONDS EAST 1868.34 FEET TO THE SOUTH LINE OF THE AFORESAID SOUTHWEST QUARTER OF SECTION 14; THENCE SOUTH 89 DEGREES 38 MINUTES 01 SECONDS WEST ALONG THE SOUTH LINE OF SAID SOUTHWEST QUARTER 171.11 FEET TO THE POINT OF BEGINNING, IN WILL COUNTY, ILLINOIS.

## ROADWAY &amp; UTILITY EASEMENT DESCRIPTION

THAT PART OF THE SOUTHEAST QUARTER OF SECTION 15, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE SOUTH 89 DEGREES 26 MINUTES 27 SECONDS WEST ALONG THE SOUTH LINE OF SAID SOUTHEAST QUARTER 702.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 1 DEGREE 33 MINUTES 33 SECONDS WEST 1417.31 FEET; THENCE SOUTH 89 DEGREES 38 MINUTES 15 SECONDS WEST 201.25 FEET; THENCE NORTH 29 DEGREES 23 MINUTES 45 SECONDS WEST 448.00 FEET; THENCE NORTH 60 DEGREES 36 MINUTES 15 SECONDS EAST 742.00 FEET; THENCE SOUTH 29 DEGREES 23 MINUTES 45 SECONDS EAST 448.00 FEET; THENCE SOUTH 89 DEGREES 38 MINUTES 15 SECONDS WEST 540.75 FEET TO THE POINT OF BEGINNING, IN WILL COUNTY, ILLINOIS.

ALL DIMENSIONS ARE IN FEET AND DECIMAL PARTS THEREOF AND ARE CORRECT AT THE FUNDAMENTAL POINT OF BEGINNING.  
"D" INDICATES NON FOUND "S" INDICATES 9/16" x 3/8" NON ROD SET

SCALE 1" = 100'

PUMPHOUSE DETAIL  
1"=40'STATE OF ILLINOIS  
COUNTY OF WILL

I, JAMES H. PAPER, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF ILLINOIS, DO HEREBY CERTIFY THAT I HAVE SURVEYED, SIGNED AND LOCATED THE IMPROVEMENTS ON AND PLATTED THE LAND DESCRIBED IN THE FOREGOING CAPTION AND SHOWN ON THIS PLAT, AND THAT THIS PLAT IS A CORRECT REPRESENTATION THEREOF, DATED AT JOLIET, ILLINOIS THIS  
DAY OF \_\_\_\_\_, 1900, A.D.

ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 2292

EXHIBIT A - TRACT 3

EXHIBIT "A"

**GEOTECH, INC.**  
CONSULTING ENGINEERS - LAND SURVEYORS

1207 CEDARWOOD DRIVE, JOLIET, ILLINOIS 60435 815/730-1010

DES PLAINES RIVER  
PUMPHOUSE

PLAT OF SURVEY

DRAWN BY: E.D. JOB # 12903  
CHECKED BY: J.M.P. DATE: 08/10/98

12/28/98 J.A.A. TRACT NO. 3  
DATE BY REVISION

# PLAT OF SURVEY

LEGAL DESCRIPTION OF PROPERTY--TRACT NO. 4

THAT PART OF THE NORTHWEST QUARTER OF SECTION 5, IN TOWNSHIP 33 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID NORTHWEST QUARTER, THENCE WEST 596 FEET, MORE OR LESS, ALONG THE NORTH LINE OF SAID SECTION 5 TO THE LAGOON KNOWN AS THE KANKAKEE CUT-OFF; THENCE SOUTH 511 FEET, MORE OR LESS, ALONG SAID LAGOON; THENCE EAST 596 FEET, MORE OR LESS TO A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER, 511 FEET SOUTH OF THE NORTH LINE OF SAID SECTION 5; THENCE NORTH TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS.

MARY ANN STUKEL

103P

Will County Recorder

Will County

R 2000086264

Page 51 of 103

LAK Date 08/11/2000

Time 11:24:59

Recording Fees:

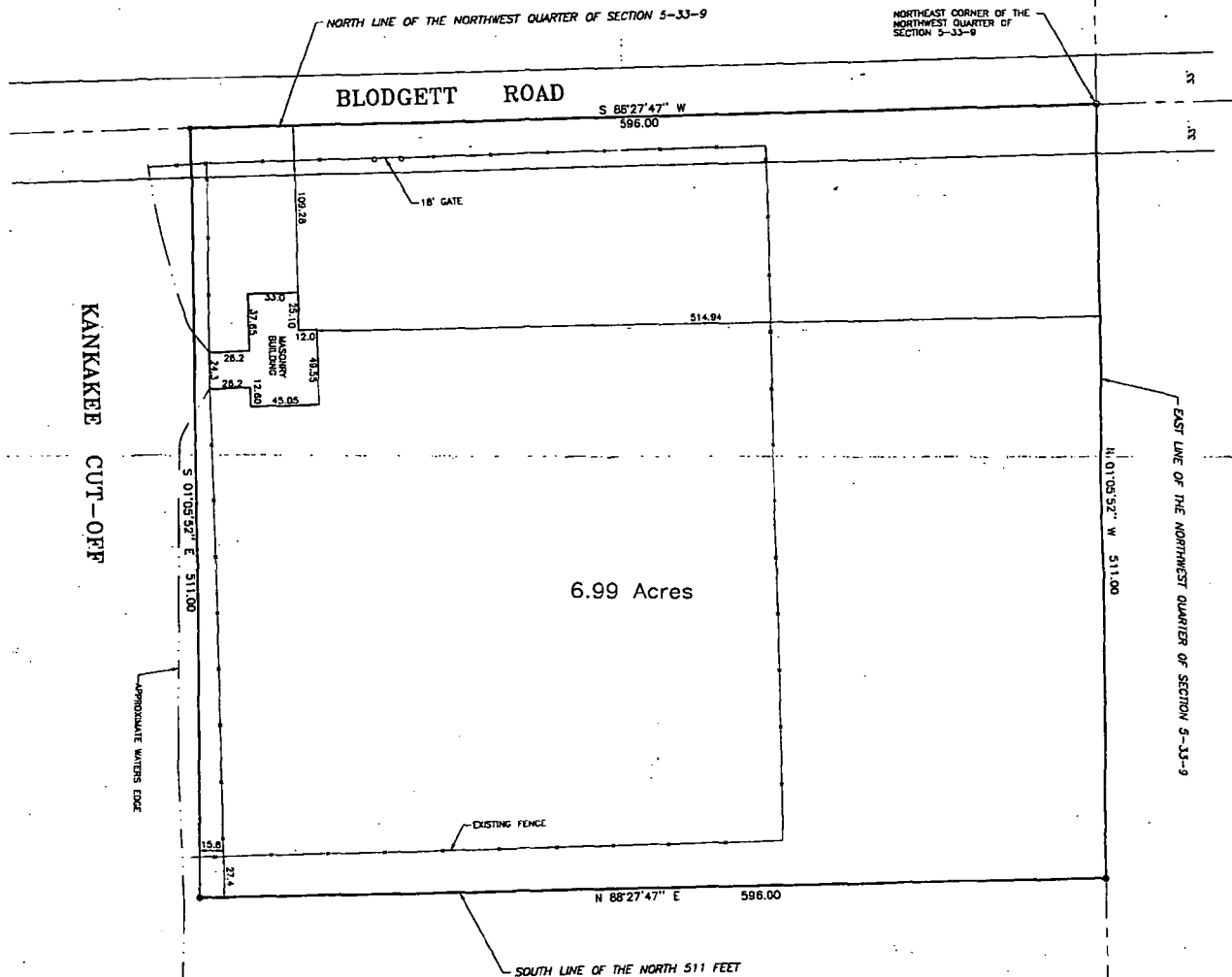
114.00

ALL DIMENSIONS ARE IN FEET AND DECIMAL PARTS THEREOF AND ARE CORRECT AT 68° FAHRENHEIT.

"O" INDICATES IRON FOUND

"B" INDICATES 5/16" x 30" IRON ROD SET

SCALE 1" = 50'

STATE OF ILLINOIS }  
COUNTY OF WILL }

I, JERALD M. PAPER, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF ILLINOIS, DO HEREBY CERTIFY THAT I HAVE SURVEYED, STAKED, AND LOCATED THE IMPROVEMENTS ON AND PLATTED THE LAND DESCRIBED IN THE FOREGOING CAPTION AND SHOWN ON THIS PLAT, AND THAT THIS PLAT IS A CORRECT REPRESENTATION THEREOF, DATED AT JOLIET, ILLINOIS THIS

DAY OF \_\_\_\_\_ 1988, A.D.

ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 2292

EXHIBIT "I"

REVISION 12/26/98 J.A.A. TRACT NO. 4			
GEOTECH INC.			
CONSULTING ENGINEERS - LAND SURVEYORS			
1207 CEDARWOOD DRIVE		815-730-1010	JOLIET, IL 60435
PROJECT: J.A.A. SOUTH PUMP HOUSE	FIELD BOOK NO. 1	J.A.A. 20	
DRAWN BY: R.D.	DATE: 08/17/00	SCALE: 1"=50'	JOB NO. 12803
COMPARE THIS PLAT WITH YOUR RECORDS AND IMMEDIATELY REPORT ANY DISCREPANCIES			

R2000086264

Exhibit B



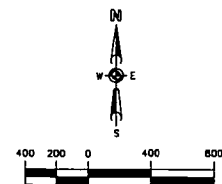
ALL STATE (DAL) 402-222-0310 E2011 RECYCLED

EXHIBIT B


Deer Run Redevelopment Plans


- A. INDUSTRIAL PARK SITE PLAN MASS GRADING
- B. MASS GRADING RAILROAD FACILITY SITE PLAN
- C. CONCEPTUAL STORM SEWER PLAN INDUSTRIAL  
PARK MAIN LINES
- D. RAIL YARD CONCEPTUAL DRAINAGE PLAN
- E. SITE DEVELOPMENT CONCEPTUAL SITE PLAN


2140N3000N1000N2000N3000N4000N5000N6000N7000N8000N9000N10000N11000N12000N13000N14000N15000N16000N17000N18000N19000N20000N21000N22000N23000N24000N25000N26000N27000N28000N29000N30000N31000N32000N33000N34000N35000N36000N37000N38000N39000N40000N41000N42000N43000N44000N45000N46000N47000N48000N49000N50000N51000N52000N53000N54000N55000N56000N57000N58000N59000N60000N61000N62000N63000N64000N65000N66000N67000N68000N69000N70000N71000N72000N73000N74000N75000N76000N77000N78000N79000N80000N81000N82000N83000N84000N85000N86000N87000N88000N89000N90000N91000N92000N93000N94000N95000N96000N97000N98000N99000N100000N101000N102000N103000N104000N105000N106000N107000N108000N109000N110000N111000N112000N113000N114000N115000N116000N117000N118000N119000N120000N121000N122000N123000N124000N125000N126000N127000N128000N129000N130000N131000N132000N133000N134000N135000N136000N137000N138000N139000N140000N141000N142000N143000N144000N145000N146000N147000N148000N149000N150000N151000N152000N153000N154000N155000N156000N157000N158000N159000N160000N161000N162000N163000N164000N165000N166000N167000N168000N169000N170000N171000N172000N173000N174000N175000N176000N177000N178000N179000N180000N181000N182000N183000N184000N185000N186000N187000N188000N189000N190000N191000N192000N193000N194000N195000N196000N197000N198000N199000N200000N201000N202000N203000N204000N205000N206000N207000N208000N209000N210000N211000N212000N213000N214000N215000N216000N217000N218000N219000N220000N221000N222000N223000N224000N225000N226000N227000N228000N229000N230000N231000N232000N233000N234000N235000N236000N237000N238000N239000N240000N241000N242000N243000N244000N245000N246000N247000N248000N249000N250000N251000N252000N253000N254000N255000N256000N257000N258000N259000N260000N261000N262000N263000N264000N265000N266000N267000N268000N269000N270000N271000N272000N273000N274000N275000N276000N277000N278000N279000N280000N281000N282000N283000N284000N285000N286000N287000N288000N289000N290000N291000N292000N293000N294000N295000N296000N297000N298000N299000N300000N301000N302000N303000N304000N305000N306000N307000N308000N309000N310000N311000N312000N313000N314000N315000N316000N317000N318000N319000N320000N321000N322000N323000N324000N325000N326000N327000N328000N329000N330000N331000N332000N333000N334000N335000N336000N337000N338000N339000N340000N341000N342000N343000N344000N345000N346000N347000N348000N349000N350000N351000N352000N353000N354000N355000N356000N357000N358000N359000N360000N361000N362000N363000N364000N365000N366000N367000N368000N369000N370000N371000N372000N373000N374000N375000N376000N377000N378000N379000N380000N381000N382000N383000N384000N385000N386000N387000N388000N389000N390000N391000N392000N393000N394000N395000N396000N397000N398000N399000N400000N401000N402000N403000N404000N405000N406000N407000N408000N409000N410000N411000N412000N413000N414000N415000N416000N417000N418000N419000N420000N421000N422000N423000N424000N425000N426000N427000N428000N429000N430000N431000N432000N433000N434000N435000N436000N437000N438000N439000N440000N441000N442000N443000N444000N445000N446000N447000N448000N449000N450000N451000N452000N453000N454000N455000N456000N457000N458000N459000N460000N461000N462000N463000N464000N465000N466000N467000N468000N469000N470000N471000N472000N473000N474000N475000N476000N477000N478000N479000N480000N481000N482000N483000N484000N485000N486000N487000N488000N489000N490000N491000N492000N493000N494000N495000N496000N497000N498000N499000N500000N501000N502000N503000N504000N505000N506000N507000N508000N509000N510000N511000N512000N513000N514000N515000N516000N517000N518000N519000N520000N521000N522000N523000N524000N525000N526000N527000N528000N529000N530000N531000N532000N533000N534000N535000N536000N537000N538000N539000N540000N541000N542000N543000N544000N545000N546000N547000N548000N549000N550000N551000N552000N553000N554000N555000N556000N557000N558000N559000N560000N561000N562000N563000N564000N565000N566000N567000N568000N569000N570000N571000N572000N573000N574000N575000N576000N577000N578000N579000N580000N581000N582000N583000N584000N585000N586000N587000N588000N589000N590000N591000N592000N593000N594000N595000N596000N597000N598000N599000





**LEGEND**


PROP. TRACK..... 

PROP. BUILDING..... 

PROP. ROADWAY..... 

DETENTION POND..... 

PROPOSED CONTOUR..... 

EXISTING CONTOUR..... 

F.F. EL ..... FINISHED FLOOR ELEVATION

SUB. EL ..... SUBGRADE ELEVATION

T/BK EL ..... TOP OF BANK ELEVATION

B/BASIN EL ..... BOTTOM OF BASIN ELEVATION

NOTE: T/BK AND B/BASIN ELEVATIONS REPRESENT FINISHED GRADE

GENERAL NOTES

1. ALL PROPOSED CONTOURS REPRESENT  
PROPOSED SUBGRADE ELEVATIONS

MARY ANN STUKEL 103P  
Will County Recorder  
Will County  
R 2000086264 Page 54 of 103  
LAK Date 08/11/2000 Time 11:24:59  
Recording Fees: 114.00

MARY ANN STUKEL

103P

Will County Recorder

Will County

R 2000086264

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LAK Date 08/11/2000

Time 11:24:59

Recording Fees:

114.00

SEE DRAWING C-69 FOR INDUSTRIAL PARK

TO UPPER AND INDUSTRIAL PARK

LINCOLN NATIONAL VETERANS CEMETERY

GRANT CREEK

PROJECT BASELINE

DETENTION POND

DETENTION POND

FOREST SERVICE

DRUMMOND ROAD

DETENTION POND

POWER PLANT

WATER TREATMENT FACILITY

WASTEWATER TREATMENT FACILITY

DETENTION POND

UPPER CONTAINER STORAGE YARD

LOWER CONTAINER STORAGE YARD

INTERMODAL YARD

INTERMODAL STORAGE YARD

SWITCHING AND STORAGE YARD

AUTOMOBILE FACILITY

LANDFILL M-13

DETENTION POND

WEST INDUSTRIAL PARK ROAD

PROPOSED OPEN DITCH

EXISTING OUTFALL

JACKSON CREEK

FOREST SERVICE

ORIGINAL JACKSON CREEK STREAMBED

PROPOSED ALIGNMENT

LEGEND

PROP. TRACK.....

PROP. ROADWAY.....

DETENTION POND.....

PROPOSED CONTOURS.....

EXISTING CONTOURS.....

EXISTING ROADWAY

FOREST SERVICE (GRADE CROSSING)

EXISTING ROADWAY

COMED EASEMENT

TNT ROAD

EXISTING OUTFALL TNT DITCH

GRANT CREEK

FOREST SERVICE

ROADWAY OVERPASS

OPEN DITCH

ROADWAY OVERPASS

ROADWAY OVERPASS

ROADWAY OVERPASS

ROADWAY OVERPASS

ROADWAY OVERPASS

ROADWAY OVERPASS

ROADWAY OVERPASS

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ROADWAY OVERPASS

55

CENTERPOINT

JOLIET ARSENAL SITE  
MASS GRADING  
RAILROAD FACILITY SITE PLAN

C-68

HARBOR 6300 TRANSSYSTEMS CORPORATION



**103P**

**R 2000086264**

LAK Date 08/11/2000

Time 11:24:59

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DRUMMOND RD.

**BASE LINE R0.**

CHICAGO AVE.  
(BRANDON RD.)

VILLAGE OF  
ELWOOD

MAIN STREET

EAST ACCESS ROAD

— DITCH G

ASPHALT PAVEMENT  
CONCRETE PAVEMENT

PONDS/DITCHES

PH 1 - IND PARK LEAD  
PH 2 - IND PARK LEAD  
AND INDUSTRY TRACKS

STORM SEWER

SLOTTED DRAIN

MANHOLE, CATCH BASIN,  
INLET & FLARED END  
SECTION

 CULVERT FLOW DIRECTION

EXISTING DIAGONAL ROAD  
(TO BE ABANDONED)

HOFF RD (VETERANS) CEMETERY

UNION PACIFIC RAILROAD

ILLINOIS ROUTE 53

56

GRAPHIC SCALE  
(IN FEET)

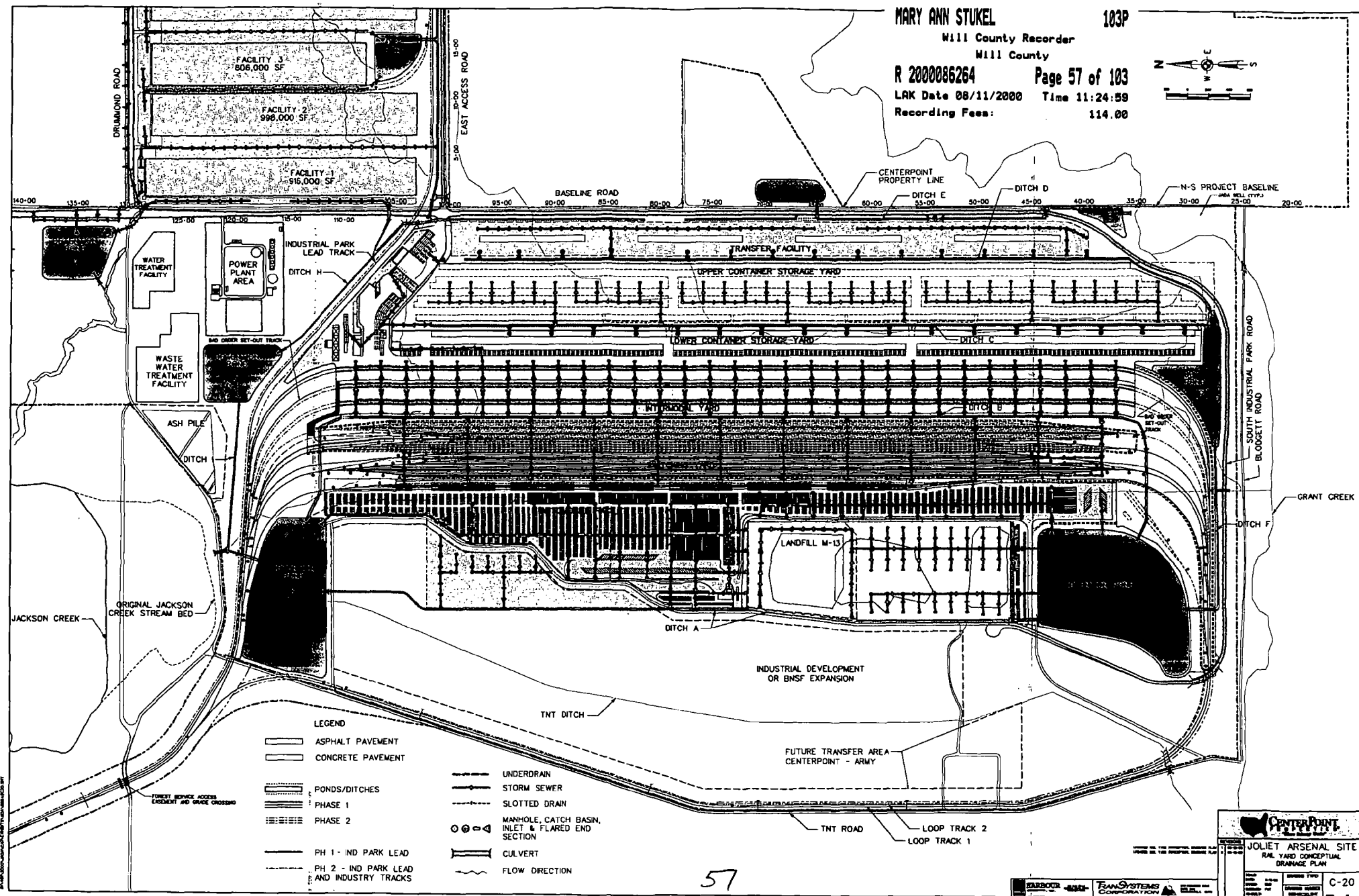
**CENTER POINT**

JOLIET ARSENAL SITE  
CONCEPTUAL STORM SEWER PLAN  
INDUSTRIAL PARK MAIN LINES

DATE	7-1-68	BRIDGE TYPE	C-27
NO.	6-0-00		
SPAN	100		

CLASSIFIED BY	EXEMPT FROM RELEASE	DATE
10-00000	2000-00000	

R2000086264



MARY ANN STUKEL

103P

Will County Recorder  
Will County

R 2000086264

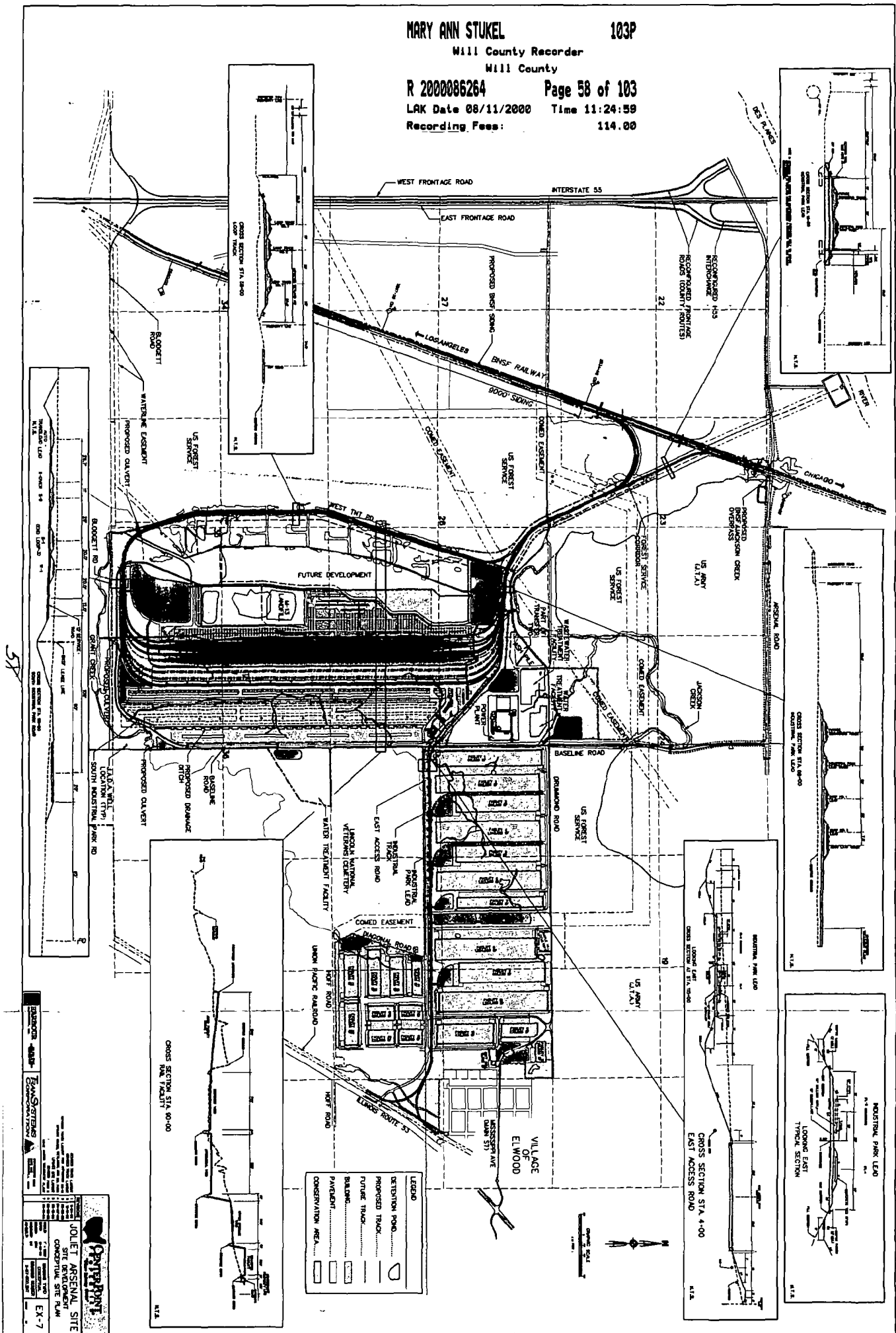
Page 58 of 103

LAK Date 08/11/2000

Time 11:24:59

Recording Fees:

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R2000086264

Exhibit C



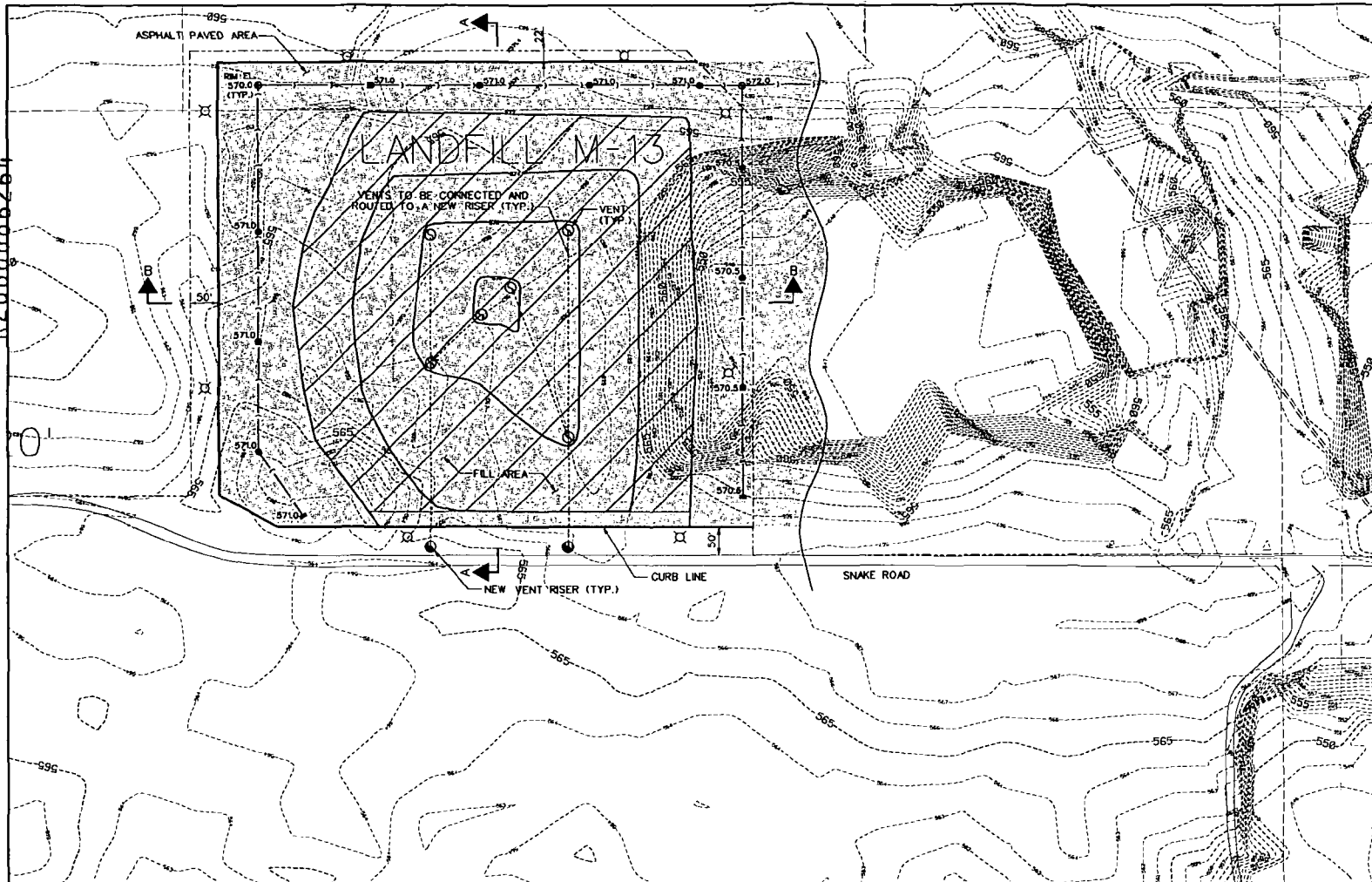
ALL STATE® LEGAL 600-222-0510 EDR11 RECYCLED

EXHIBIT C

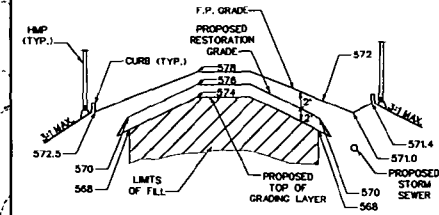
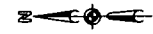
Concept Plan For Landfill Cap at M-13

R2000086264

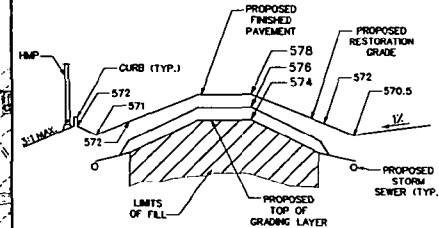
R2000086264



PLAN VIEW



SECTION A-A  
NTS



SECTION B-B  
NTS

LEGEND

- ASPHALT PAVED AREA
- FILL AREA
- STORM SEWER
- H&P (HIGH MAST LIGHTING)
- VENT

REVISIONS			
NO.	DATE	DESCRIPTION	BY

RECOMMENDED: \_\_\_\_\_

DATED: \_\_\_\_\_

APPROVED: \_\_\_\_\_

DATED: \_\_\_\_\_

SUBDIV: \_\_\_\_\_

LINE SEG: \_\_\_\_\_ AUTH: \_\_\_\_\_

MARY ANN STUKEL 103P  
 Will County Recorder  
 Will County  
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 LAK Date 08/11/2000 Time 11:24:59  
 Recording Fees: 114.00



JOLIET ARSENAL  
 PRELIMINARY M-13  
 IMPROVEMENTS

DESIGNED BY:	JOB #	DATE	SHEET NO.
CHECKED BY: WJC	9804502	11-16-99	M-13
DRAWN BY: JPD			

R2000086264

Exhibit D



ALL STATE LEGAL 800-327-0819 EDH11 RECYCLED



EXHIBIT D

Schedule Concerning Future Transfers of JOAAP Property

### Exhibit D

As provided in Article 3.01 of this MOA, this Exhibit D sets forth the parties' plan for achieving the timely interim access and ultimate transfer of certain "Significant T-2 Areas" of the JOAAP Property which are critical to the functioning of the Deer Run Redevelopment but which will not be transferred by the Initial Deed.

In accordance with Article 1.12 of this MOA, as used in this Exhibit D, "JADA" shall mean the Joliet Arsenal Development Authority, and its successors and assigns under this MOA or applicable portions hereof.

JADA has advised the Army that CenterPoint Intermodal LLC and CenterPoint Realty Services Corporation (two of the Initial Transferees) have agreed with their railroad customer to complete the intermodal rail facility, Public Water Supply Development and other infrastructure components of the Deer Run Redevelopment by February 1, 2002.

In order to accommodate the Deer Run Redevelopment critical path, the parties have agreed upon the "Charts: Target Dates, Tasks and Events" and "Protocols" hereinafter set forth. With respect to the "Additional Concept Plans" and "pre-FOST" access to designated T-2 areas hereinafter described, this Exhibit D supplements the Army's current remediation plans and FOST generation schedule for JOAAP which are described in Article 4.04 of this MOA.

Toward the end of providing JADA with timely site access and T-2 property transfers in accordance with the Charts provided below, the Army agrees in good faith to use best efforts in implementing the various elements necessary to achieve compliance with the target dates, tasks and events. Both parties acknowledge that the ability to maintain this schedule is highly dependent on the results of currently pending soil characterization reports which are expected to provide additional information on the extent of environmental contamination at certain Significant T-2 Areas. (*See also*, Protocol No. 10 below.)

It is further understood that the cooperation of the USEPA and the IEPA are equally essential to realizing the goals set forth in the following Charts and in implementing the Protocols, and therefore the parties agree to work cooperatively in communicating with and seeking expedited responses from the USEPA and IEPA.

### T-1 and T-2

T-1: The portions of the JOAAP Property (described in Exhibit A of this MOA) which have been determined by the Army as suitable for transfer to JADA as of the date of this MOA.

T-2: The portions of the Deer Run Redevelopment not transferred in T-1.

Exhibit D Map: A map identifying generally the location of T-1 and T-2 areas relevant to the Deer Run Redevelopment, to include the identification of access routes enabling the Army to cross, as appropriate, T1 and T2 Property in order to access the Bio Remediation area located roughly across from Significant T-2 Area M-7 (as defined below).

Description of "Significant T-2 Areas" (also see attached Exhibit D Map)

M-5: All of area M-5.

M-6 North: The area of M-6 lying north of Connecting Road as identified on the Exhibit E Map.

M-6 Return Track: The portion of M-6 lying within 200' east of West TNT Road.

M-7 Return Track: The portion of M-7 lying within 200' east of West TNT Road.

Snake Road: That portion of Snake Road, which lies within T-2.

Charts: Target Dates, Tasks and Events

Following is a series of charts grouped by Significant T-2 Areas setting forth the parties' good faith agreement and commitment concerning the timetable for accomplishing various described tasks and events pertaining to these Areas:

M-5

Date	Task or Event	Comment
24 Apr 00	Right of Entry (RoE) for Soil Bore Sampling and Test Pits (Geotech Work) (RoE/Geotech Work).	Accomplished.
04 Sept. 00	RoE for demolition, excavation, grading, and construction (DEGC) (RoE/DEGC).	On tract for estimated completion date. Obtaining permission from IEPA to flash concrete foundations may temporarily limit demolition activities around foundation locations.
01 Jan 01	FOST	On tract for estimated completion.
01 Feb 01	Transfer	On tract for estimated transfer date.

## M-6 North

Date	Task or Event	Comment
15 May 00	Soil characterization data released	Accomplished.
01 July 00	RoE/Geotech Work	Accomplished.
14 Aug 00	RoE/DEGC	Army closure report (expected 14 August 00) provides basis for RoE/DEGC work.
01 Jan 01	FOST	On tract for estimated completion date.
01 Feb 01	Transfer	On tract for estimated transfer date.

## M-6 Return Track

Date	Task or Event	Comment
15 May 00	Soil characterization data released	Accomplished.
30 May 00 (or earlier as agreed)	RoE/Geotech Work	Accomplished.
14 Aug 00	RoE/DEGC	On tract for estimated completion date.
01 Jan 01	FOST	On tract for estimated completion date.
01 Feb 01	Transfer	On tract for estimated transfer date.

## M-7 Return Track

Date	Task or Event	Comment
15 June 00	Soil characterization data released	Accomplished.
01 Oct 01	Army issues closure report	On tract for estimated completion date.
15 Dec 01	RoE/DEGC	On tract for obtaining RoE and estimated DEGC work completion date.
01 Feb 02	JADA granted easement for full access/activities	Easement for full access/activities remains pending FOST and transfer when Army access across M-7 Return Track is no longer required.

## Snake Road

Date	Task or Event	Comment
01 Jul 00	RoE granted for vehicular use.	Accomplished.
01 Feb 02	Easement granted for vehicular use.	Army will prepare report of availability or other document as required.

Protocols

The parties have hereafter identified the Protocols which appear necessary and useful for the timely implementation of the above Charts. However, the parties recognize that as the Deer Run Redevelopment progresses, modification to these and/or additional Protocols may need to be agreed upon to address unforeseen circumstances.

1. Each Right of Entry (RoE) to conduct soil bore sampling and test pits (Geotech Work) or demolition-excavation-grading-construction (DEGC) work on the T-2 land described above shall take the form of a Work Plan prepared by JADA or its contractor(s) and approved by the Commander's Representative at JOAAP. For purposes of this exhibit, each approved Work Plan shall constitute a supplement to an existing RoE issued by the Army to JADA or its contractor(s). Each Work Plan shall be submitted to the USEPA and IEPA for informal consultation and concurrence. Subject to compliance with applicable Protocols hereinafter set forth, access pursuant to approved Work Plans and RoEs shall mean reasonable access to the identified areas by JADA or its contractor(s), in order to accomplish the corresponding functions or tasks described therein. The Army shall not unreasonably withhold or delay approval of Work Plans or any new or extended RoEs as may be appropriate or necessary.

2. Each Work Plan shall contain information reasonably requested by the Commander's Representative. The agreed upon general specifications for each Work Plan submission shall be as follows: (i) the identity of the contractor(s) which will be engaged in the work covered by the license; (ii) the identity of personnel supervising such work, and evidence that such supervisory personnel have completed appropriate Army and/or OSHA training for explosive/impact sensitive soils and hazardous material handling; (iii) a reasonably detailed description of the work or testing to be conducted; (iv) plats or maps which identify with reasonable accuracy the areas within T-2 at which such work or testing shall be conducted; (v) a health and safety plan appropriate to the nature of the proposed work and the risks associated therewith; (vi) an estimated schedule for implementing and completing the tasks described in the Work Plan, subject to contingencies and delays beyond the reasonable control of the party responsible for such tasks; and (vii) indemnification statements in favor of the Army and the United States Government in accordance with the RoEs which exist as of the date of this MOA in favor of JADA and in favor of CenterPoint and its contractors, as the case may be.

3. If soil characterization within any of the M-6 areas demonstrates a need to conduct remedial work not now anticipated and which reasonably may be expected to prevent the completion of M-6 by the dates specified in the relevant M-6 Chart provided above, JADA may submit a T2 Concept Plan(s) (TCP) for excavating and stockpiling contaminated soil from the subject M-6 areas, and for the construction of additional soil storage area, in accordance with Protocol 4 below. Likewise, if the re-programmed remedial work for M-7 Return Track cannot be completed by 01 August 01, JADA may submit a TCP for excavating and stockpiling contaminated soil from M-7 Return Track, and for the construction of additional soil storage area, in accordance with Protocol 4 below. It is agreed and understood that work performed under or incident to any TCP shall not exacerbate existing environmental conditions within the subject T-2 Area or other JOAAP property, or cause the Army's remedial work therein to become more costly.

4. The T2 Concept Plan(s) proposal(s) discussed in protocol 3 above, shall be carried out in a manner consistent with the MOA. It is further agreed and understood, that each TCP shall be prepared by JADA or its contractor, shall be subject to approval by the Commander's Representative at JOAAP, and shall be submitted to the USEPA and IEPA for consultation and concurrence. The approved TCPs shall be implemented through the Work Plan procedure described in Protocol 2 above.

5. To the extent that remedial work performed by JADA pursuant to one or more of the TCPs addresses Existing Contamination that the Army would otherwise be required to address in out-years as required by Applicable Law, JADA shall be reimbursed by the Army for such remedial work, subject to the availability of funds, but only: (i) in the amount of the Army's reasonably anticipated cost to conduct such work; and (ii) at such time as the Army was scheduled to conduct such work and incur the corresponding expense. TCP remedial work involving Existing Contamination performed by JADA which otherwise would not have been performed by the Army (e.g.: expansion of the soil stockpiling and containment area) shall not be reimbursable. The parties agree to enter into one or more cooperative agreements, as appropriate and necessary, to facilitate implementation of this protocol 5. Terms and conditions

relating to the reimbursement of funds to JADA will be covered in and governed by these agreements. It is further understood and agreed that any provisions concerning reimbursement shall be structured so as to accommodate and ensure compliance with the requirements of the Federal Anti-Deficiency Act.

6. JADA, its contractors and the rail customer shall be granted an easement for the non-exclusive use of Snake Road for construction access to T-1 and T-2 areas and for access to the Automobile Facility identified in the Exhibit D Map attached hereto; provided that such permitted use of Snake Road shall not conflict or unreasonably interfere with the Army's or its contractors' use thereof. JADA shall not be permitted to improve or widen Snake Road on T-2 land. All road improvements or widening must occur on T-1 land.

7. If Transfer has not occurred for any portions of M-5, M-6 North, or M-6 Return Track by 01 Feb 02, easements, to the maximum extent permitted by law, shall be granted to JADA on or before 01 Feb 02 to permit the functioning of the Deer Run Redevelopment.

8. The Army shall promptly provide JADA with copies of soil test data at no cost other than routine duplication charges. In addition to the target dates in the Charts for the delivery of "soil characterization reports," the Army shall make available to JADA all "raw" or unverified soil test data on a preliminary basis promptly after the Army's receipt thereof.

9. JADA may request that the Army expedite laboratory analysis testing of soil or groundwater samples and the Army shall accommodate such requests, but only if prompt advance notice of such request is made by JADA, and only if JADA pays the additional cost of expedited laboratory analysis (in advance if requested).

10. If soil characterization results have a material adverse effect on the schedule of the Tasks or Events set forth in the Charts above, then the parties agree to work cooperatively to make reasonable revisions to the Charts in order to maintain the original intentions of the parties as set forth above. Such revisions may include the implementation of additional TCPs (in the same or different Areas), or revisions to the TCPs currently described in the above Charts.

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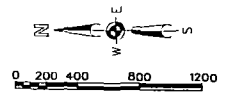
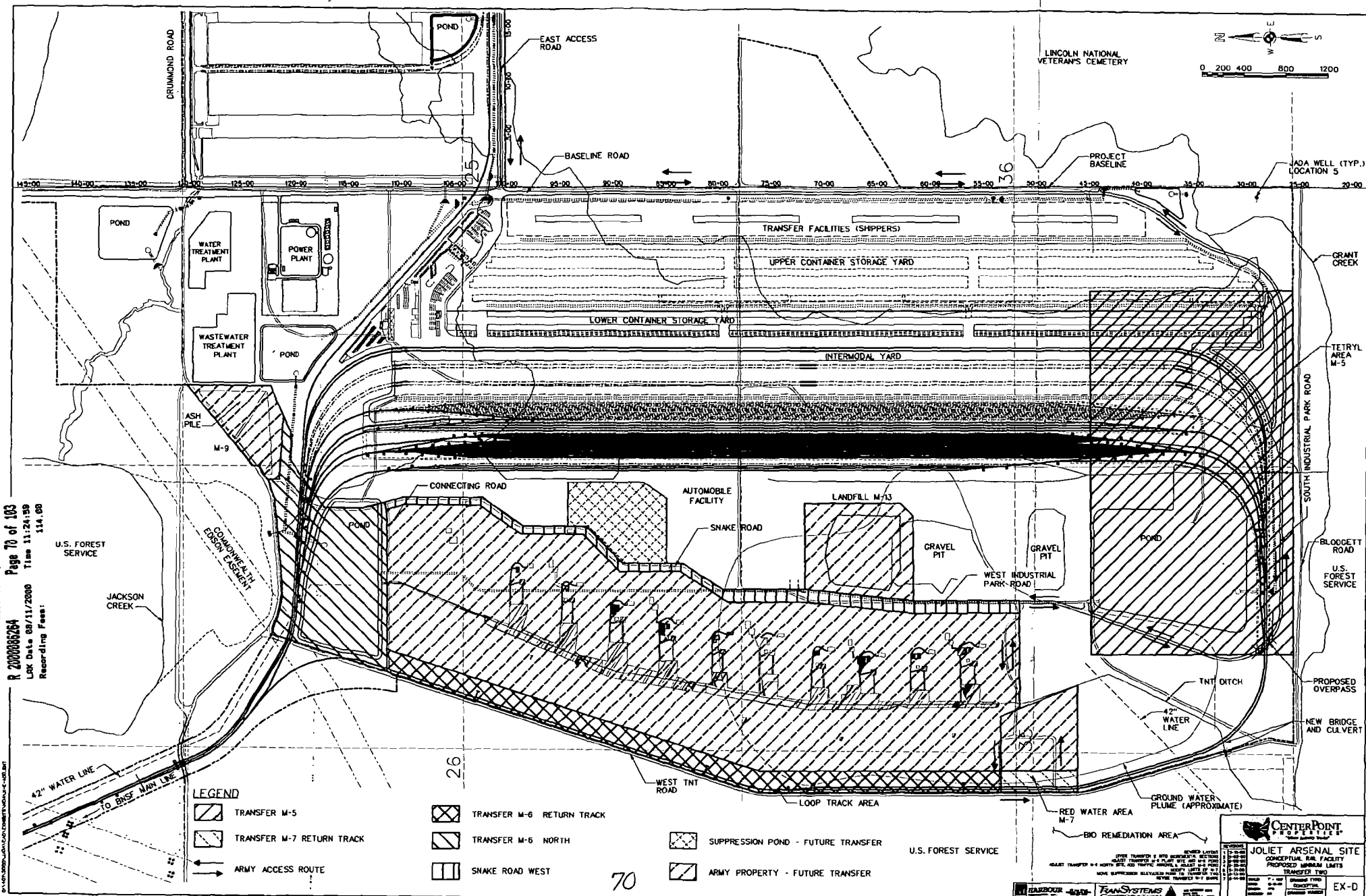
MARY ANN STUDEL

Mill County Recorder

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Log Date 08/11/2008 Time 11:24:59

Recording Fee: 114.00



**CENTERPOINT**  
JOLIET ARSENAL SITE  
CONCEPTUAL RAIL FACILITY  
PROPOSED SHIPMENT LIMITS  
TRANSFER TWO

**EX-D**

Exhibit B  
Legal Descriptions -- Tract Nos. 1, 2, 3, and 4 (Article I)

THAT PART OF SECTION 30, IN TOWNSHIP 34 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, AND THAT PART OF SECTIONS 24, 25, 26, 35, AND 36 IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN CHANNAHON AND JACKSON TOWNSHIPS, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF AFORESAID SECTION 30; THENCE EASTERLY ALONG THE NORTH LINE OF SAID SECTION 30 TO THE EASTERLY RIGHT-OF-WAY LINE OF DIAGONAL ROAD; THENCE SOUTHERLY ALONG SAID EASTERLY RIGHT-OF-WAY LINE TO A POINT 2212.19 FEET NORTH OF, AS MEASURED PERPENDICULAR TO THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 30; THENCE SOUTH 88 DEGREES 06 MINUTES 29 SECONDS WEST, 1019.40 FEET, TO THE WESTERLY LINE OF THE EASEMENT GRANTED TO COMMONWEALTH EDISON COMPANY, PER DOCUMENT NO. R74-19438; THENCE SOUTH 87 DEGREES 56 MINUTES 32 SECONDS WEST, 1366.17 FEET, TO THE WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 30, SAID POINT BEING 2222.41 FEET NORTH OF THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE CONTINUING SOUTH 87 DEGREES 56 MINUTES 32 SECONDS WEST, 2641.65 FEET, TO THE WEST LINE OF THE EAST HALF OF AFORESAID SECTION 25; THENCE SOUTH 01 DEGREE 51 MINUTES 37 SECONDS EAST, ALONG SAID WEST LINE, 2219.56 FEET, TO THE SOUTHWEST CORNER OF THE EAST HALF OF SAID SECTION 25; THENCE NORTH 87 DEGREES 54 MINUTES 15 SECONDS EAST, ALONG THE SOUTH LINE OF THE EAST HALF OF SAID SECTION 25, 1409.78 FEET; THENCE SOUTH 10 DEGREES 22 MINUTES 23 SECONDS WEST, 754.21 FEET; THENCE SOUTH 55 DEGREES 56 MINUTES 16 SECONDS WEST, 1474.44 FEET, TO THE WEST LINE OF THE EAST HALF OF AFORESAID SECTION 36, SAID POINT BEING 1517.03 FEET SOUTH OF THE NORTHWEST CORNER OF THE EAST HALF OF SAID SECTION 36; THENCE SOUTHERLY ALONG SAID WEST LINE OF THE EAST HALF OF SECTION 36 TO THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 36; THENCE WESTERLY ALONG SAID SOUTH LINE TO THE EAST LINE OF THE WEST 1660.00 FEET OF SAID SOUTHWEST QUARTER; THENCE NORTHERLY ALONG SAID EAST LINE TO THE NORTH LINE OF THE SOUTH 1930.00 FEET OF SAID SOUTHWEST QUARTER; THENCE WESTERLY ALONG SAID NORTH LINE AND WESTERLY ALONG THE NORTH LINE OF THE SOUTH 1930.00 FEET OF THE SOUTHEAST QUARTER OF AFORESAID SECTION 35 TO THE WEST LINE OF THE EAST 1770.00 FEET OF SAID SOUTHEAST QUARTER; THENCE SOUTHERLY ALONG SAID WEST LINE TO THE SOUTH LINE OF SAID SOUTHEAST QUARTER; THENCE WESTERLY ALONG SAID SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 35 TO A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTH 06 DEGREES 05 MINUTES 12 SECONDS EAST ALONG SAID PARALLEL LINE 254.34 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 18 DEGREES 04 MINUTES 43 SECONDS WEST 1830.93 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 02 DEGREES 00 MINUTE 44 SECONDS WEST 50.00 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1010.00 FEET; THENCE NORTH 24 DEGREES 02 MINUTES 35 SECONDS WEST 593.70 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1020.00 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 997.97 FEET; THENCE NORTH 87 DEGREES 56 MINUTES 38 SECONDS EAST 799.20 FEET; THENCE NORTH 43 DEGREES 09 MINUTES 10 SECONDS EAST 170.31 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 34 SECONDS WEST 900.01 FEET; THENCE SOUTH 87 DEGREES 56 MINUTES 38 SECONDS WEST 810.01 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 770.00 FEET; THENCE NORTH 30 DEGREES 31 MINUTES 22 SECONDS EAST 450.96 FEET; THENCE NORTH

Exhibit B (Continued)  
Legal Descriptions -- Tract Nos. 1, 2, 3, and 4 (Article I)

01 DEGREE 45 MINUTES 06 SECONDS WEST 160.00 FEET; THENCE NORTH 88 DEGREES 25 MINUTES 08 SECONDS EAST 617.05 FEET; THENCE NORTH 33 DEGREES 23 MINUTES 57 SECONDS EAST 261.50 FEET; THENCE NORTH 2 DEGREES 14 MINUTES 08 SECONDS WEST 716.02 FEET; THENCE SOUTH 88 DEGREES 26 MINUTES 35 SECONDS WEST 411.56 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 422.50 FEET; THENCE NORTH 32 DEGREES 50 MINUTES 39 SECONDS EAST 475.54 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 750.00 FEET; THENCE NORTH 17 DEGREES 51 MINUTES 34 SECONDS WEST 378.45 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 365.01 FEET; THENCE NORTH 51 DEGREES 00 MINUTE 51 SECONDS EAST 553.31 FEET; THENCE NORTH 87 DEGREES 58 MINUTES 20 SECONDS EAST 266.44 FEET; THENCE NORTH 65 DEGREES 07 MINUTES 25 SECONDS EAST 479.10 FEET; THENCE NORTH 01 DEGREE 12 MINUTES 13 SECONDS WEST 776.91 FEET; THENCE SOUTH 49 DEGREES 20 MINUTES 41 SECONDS WEST 976.61 FEET TO THE WEST LINE OF THE NORTHWEST QUARTER OF AFORESAID SECTION 25; THENCE NORTHERLY ALONG SAID WEST LINE, AND NORTHERLY ALONG THE WEST LINE OF THE SOUTHWEST QUARTER OF AFORESAID SECTION 24 TO THE NORTH LINE OF SAID SOUTHWEST QUARTER OF SECTION 24; THENCE EASTERLY ALONG SAID NORTH LINE TO THE EAST LINE OF SAID SOUTHWEST QUARTER; THENCE SOUTHERLY ALONG SAID EAST LINE TO THE NORTH LINE OF THE NORTHEAST QUARTER OF THE AFORESAID SECTION 25; THENCE EASTERLY ALONG SAID NORTH LINE TO THE NORTHEAST CORNER OF SAID SECTION 25; THENCE NORTHERLY ALONG THE RANGE LINE 6.60 FEET TO THE POINT OF BEGINNING; EXCEPTING THEREFROM THAT PART OF THE NORTH HALF OF AFORESAID SECTION 30 CONVEYED FOR CEMETERY PURPOSES BY DEEDS RECORDED IN BOOK 66, PAGE 102, AS DOCUMENT NO. 39953, AND IN BOOK 578, PAGE 106 AS DOCUMENT NO. 334629; CONTAINING 1304.651 ACRES, MORE OR LESS.

TRACT NO. 2.: THAT PART OF SECTIONS 16 AND 17, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN FLORENCE TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 16; THENCE SOUTH 88 DEGREES 23 MINUTES 02 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 16, A DISTANCE OF 25.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 01 DEGREE 18 MINUTES 35 SECONDS WEST ALONG THE WEST LINE OF THE EAST 25.00 FEET OF SAID SECTION 16, A DISTANCE OF 1128.64 FEET; THENCE SOUTH 88 DEGREES 29 MINUTES 55 SECONDS WEST 1090.62 FEET; THENCE NORTH 60 DEGREES 02 MINUTES 18 SECONDS WEST 281.93 FEET; THENCE NORTH 01 DEGREE 31 MINUTES 49 SECONDS WEST 1153.58 FEET; THENCE NORTH 88 DEGREES 26 MINUTES 53 SECONDS EAST 1336.04 FEET TO THE AFORESAID WEST LINE OF THE EAST 25.00 FEET OF SECTION 16; THENCE NORTH 01 DEGREE 18 MINUTES 35 SECONDS WEST ALONG SAID WEST LINE 318.50 FEET; THENCE NORTH 60 DEGREES 33 MINUTES 50 SECONDS WEST 2028.30 FEET; THENCE SOUTH 89 DEGREES 02 MINUTES 03 SECONDS WEST 2606.67 FEET TO THE SOUTHEASTERLY CORNER OF THE WILL COUNTY LANDFILL PARCEL; THENCE ALONG THE SOUTHERLY BOUNDARY OF SAID WILL COUNTY LANDFILL PARCEL AS FOLLOWS: SOUTH 89 DEGREES 02 MINUTES 03 SECONDS WEST 918.61 FEET; SOUTH 01 DEGREE 30 MINUTES 35 SECONDS EAST 1139.58 FEET; NORTH 87 DEGREES 45 MINUTES 15 SECONDS WEST 40.03 FEET; SOUTH 87 DEGREES 49 MINUTES 59 SECONDS WEST 2780.33 FEET; SOUTH 02 DEGREES 06 MINUTES 22 SECONDS EAST 87.85 FEET; SOUTH 87 DEGREES 49 MINUTES 03 SECONDS WEST 1730.80 FEET; AND SOUTH 28

Exhibit B (Continued)  
Legal Descriptions -- Tract Nos. 1, 2, 3, and 4 (Article I)

DEGREES 44 MINUTES 04 SECONDS WEST 1458.04 FEET TO THE WEST LINE OF THE AFORESAID SECTION 17; THENCE SOUTH 01 DEGREE 31 MINUTES 23 SECONDS EAST ALONG SAID WEST LINE 1292.35 FEET TO THE SOUTH LINE OF SAID SECTION 17; THENCE EASTERLY ALONG SAID SOUTH LINE AND EASTERLY ALONG THE SOUTH LINE OF THE AFORESAID SECTION 16 TO THE POINT OF BEGINNING, CONTAINING 705.81 ACRES, MORE OR LESS.

TRACT NO. 3: THAT PART OF THE SOUTHEAST QUARTER OF SECTION 15, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE SOUTH 88 DEGREES 26 MINUTES 27 SECONDS WEST ALONG THE SOUTH LINE OF SAID SOUTHEAST QUARTER 702.00 FEET; THENCE NORTH 01 DEGREE 33 MINUTES 33 SECONDS WEST 1417.31 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 60 DEGREES 36 MINUTES 15 SECONDS WEST 201.25 FEET; THENCE NORTH 29 DEGREES 23 MINUTES 45 SECONDS WEST 449.00 FEET; THENCE NORTH 60 DEGREES 36 MINUTES 15 SECONDS EAST 742.00 FEET; THENCE SOUTH 29 DEGREES 23 MINUTES 45 SECONDS EAST 449.00 FEET; THENCE SOUTH 60 DEGREES 36 MINUTES 15 SECONDS WEST 540.75 FEET, MORE OR LESS, TO THE POINT OF BEGINNING, CONTAINING 7.648 ACRES, MORE OR LESS.

TRACT NO. 4.: THAT PART OF THE NORTHWEST QUARTER OF SECTION 5, IN TOWNSHIP 33 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN WILMINGTON TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID NORTHWEST QUARTER, THENCE WEST 596.00 FEET, MORE OR LESS, ALONG THE NORTH LINE OF SAID SECTION 5 TO THE LAGOON KNOWN AS THE KANKAKEE CUT-OFF; THENCE SOUTH 511.00 FEET, MORE OR LESS, ALONG SAID LAGOON; THENCE EAST 596.00 FEET, MORE OR LESS, TO A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER, 511.00 FEET SOUTH OF THE NORTH LINE OF SAID SECTION 5; THENCE NORTH TO THE POINT OF BEGINNING, CONTAINING 6.99 ACRES, MORE OR LESS.

## Exhibit C

## Legal Description -- Reserved Easements and Rights-of-Way (Article III)

THAT PART OF SECTION 17, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN FLORENCE TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 17; THENCE NORTH 01 DEGREE 31 MINUTES 23 SECONDS WEST ALONG THE WEST LINE OF SAID SECTION 17, A DISTANCE OF 1292.35 FEET; THENCE NORTH 28 DEGREES 44 MINUTES 04 SECONDS EAST 198.46 FEET; THENCE SOUTH 01 DEGREE 31 MINUTES 23 SECONDS EAST PARALLEL WITH THE AFORESAID WEST LINE OF SECTION 17 A DISTANCE OF 1463.40 FEET TO THE SOUTH LINE OF SAID SECTION 17; THENCE SOUTH 88 DEGREES 15 MINUTES 38 SECONDS WEST ALONG SAID SOUTH LINE 100.00 FEET TO THE POINT OF BEGINNING, CONTAINING 3.17 ACRES, MORE OR LESS.

*Drummond Rd, Vacant land, Elwood Illinois*

*10 24 100 001*

*18 17 100 001*

*18 16 100 001*

*10 15 400 003*

*11 23 100 002*

*10 15 200 004*

*17 05 100 002*

*10 35 100 001*

*10 36 200 001*

*10 25 100 001*

*11 30 400 006*

*10 26 100 001*

*10 36 100 001*

*10 36 300 001*

*11 30 100 001*

*200 001*

*74 300 001*

Exhibit D

Table of Hazardous Substances Stored, Released, and Disposed at the Property (Article VIII.A.1)

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP**  
**PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
 (Source - Enhanced Preliminary Assessment Screening, September 1997)  
 Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
August 16, 1954	Toluene Tank Farm	Lightning struck the #10 toluene tank burning the entire contents of the tank. The storage tank and 80,878 gallons of toluene were lost.	HIST48
November 7, 1954	Acid area	A platinum filter on #5 AOP unit ruptured. The cause was determined to be an explosion from accumulation of ammonia salts on the filter media. All platinum filters were subsequently removed from service.	HIST48
April 28, 1966	Center Toluene Tank Farm	The number 6 toluene tank was struck by lightning and burned. Approximately 7,000 gallons of toluene was destroyed.	HIST12
March 17, 1968	Acid # 3	43,500 pounds of oleum was spilled at carspot 407 due to overfilling of a tank car. Water and soda ash were used to neutralize the spill.	UNUR01
December 19, 1969	Acid # 1	74,000 pounds of acid were spilled from an acid line.	HOLN01
December 1, 1970	Acid # 3	1500 pounds, anhydrous ammonia lost due to defective rupture disk and valve packing.	ARMY01
	Acid #1	6,000 pounds of tetryl mix was lost due to transfer line decontamination. Soda ash was used to neutralize.	ARMY01
December 7, 1970	Acid #3	3,000 pounds of 93 percent sulfuric acid sludge was lost due to cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
December 16, 1970	Acid #3	1,500 pounds of anhydrous ammonia was lost due to a blown rupture disk.	ARMY01
June 11, 1971	Central Toluene Farm	A toluene tank was struck by lightning. "The tank was full and did not catch fire." The tank incurred \$6,000 of damage. It is not clear from the history if any toluene was lost.	HIST06, HIST17
July 3, 1971	Acid #3	3,000 pounds of 74 percent sulfuric acid was lost due to a faulty gasket installation. Soda ash was used to neutralize.	ARMY01
July 7, 1971	Acid #1	1,600 pounds of tetryl mix sludge was lost due to tank cleaning. Soda ash was used neutralize.	ARMY01
July 9, 1971	Acid #3,	1,100,000 pounds of toluene was lost due to lightning striking tank Number 1.	ARMY01, HIST17
July 14, 1971	Acid #3	1,300 pounds of anhydrous ammonia was lost due to a rupture disk failure.	ARMY01
July 23, 1971	Acid #3	2,048 pounds of F-60 mix was lost due to line leakage. Soda ash was used to neutralize the spill.	ARMY01
August 3, 1971	Acid #3	3,800 pounds of F-60 antifreeze sludge was lost due to cleaning of tank for maintenance. Soda ash was used to neutralize.	ARMY01



**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1990

Date	Location	Quantity and Material Spilled	Reference
August 5, 1971	Acid #3	967 pounds of ammonia was lost due to rupture disk failure.	ARMY01
	Acid #1	2,250 pounds of strong nitric sludge was lost due tank cleaning for maintenance. Soda ash was used to neutralize the spill.	ARMY01
August 11, 1971	Acid #3	12,000 pounds of ammonia was lost due to ruptured steam coil.	ARMY01
August 13, 1971	Acid #3	1,350 pounds of strong nitric sludge was lost due tank cleaning for maintenance. Soda ash was used to neutralize the spill.	ARMY01
August 14, 1971	North Classification Yard	A leak occurred at a fuel oil tank adjacent to building 704-13.	INCR01
	Acid #3	3,800 pounds of 76 percent sulfuric sludge was lost due to tank cleaning for maintenance work. Soda ash was used neutralize.	ARMY01
August 19, 1971	Acid #3	1,900 pounds of 93 percent sulfuric sludge was lost due to tank cleaning for maintenance work. Soda ash was used neutralize.	ARMY01
	Acid #3	12,000 pounds of 93 percent sulfuric (acid) was lost due to tank cleaning for maintenance work. Soda ash was used neutralize.	ARMY01
August 21, 1971	Acid #1	55,369 pounds of 93 percent sulfuric (acid) was lost due to operator error.	ARMY01
August 25, 1971	Acid #3	2,500 pounds 93 percent sulfuric sludge was lost due to tank washing for maintenance. Soda ash was used to neutralize.	ARMY01
September 2, 1971	Acid #3	8,324 pounds of F-60 sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
September 3, 1971	Acid #3	8,500 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
September 8, 1971	Shop Area	A nitric acid line leaked at a connection over the railroad north east of Building 715-2.	INCR01
September 13, 1971	Acid #3	11,602 pounds of TNT summer mix was lost due to operator error. Soda ash was used to neutralize.	ARMY01
September 15, 1971	Acid #2	14,000 pounds of 60 percent nitric was lost due to operator error. Soda ash was used to neutralize.	ARMY01

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP**  
**PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
 (Source - Enhanced Preliminary Assessment Screening, September 1997)  
 Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
	Acid #3	12,000 pounds of TNT mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
September 20, 1971	Acid #3	12,000 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
September 22, 1971	Acid #3	4,600 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
September 28, 1971	Acid #3	1,000 pounds of tetryl mix was lost due to a leaking line. Soda ash was used to neutralize.	ARMY01
September 29, 1971	Acid #3	28,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
September 30, 1971	Acid #3	1,200 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
October 4, 1971	Acid #3	1,600 pounds of 93 percent sulfuric sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
October 5, 1971	Acid #3	5,000 pounds of 93 percent sulfuric sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
October 7, 1971	Acid #3	4,000 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
	Acid #3	4,000 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
October 8, 1971	Acid #2	50,000 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
October 12, 1971	Acid #3	pounds of F-80 sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
October 15, 1971	Acid #3	12,000 pounds of 93 percent sulfuric sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
	Acid #3	2,000 pounds of 93 percent sulfuric sludge was lost due to tank washing for maintenance. Soda ash was used to neutralize.	ARMY01
October 21, 1971	Acid #1	18,000 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize	ARMY01

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
October 22, 1971	Acid #3	3,000 pounds of 74 percent sulfuric sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
October 26, 1971	Acid #1	29,647 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
October 28, 1971	Acid #3	4,000 pounds of 68 percent sulfuric sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
October 29, 1971	Acid #3	3,500 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
January 3, 1972	Acid #3	1,800 pounds of strong mix sludge was lost due to tank washing for maintenance. Soda ash was used to neutralize.	UCCI09
January 10, 1972	Acid #3	600 pounds of toluene was lost at car spot 411 due to steam cleaning.	UNUR01
January 12, 1972	Acid #3	500 pounds of ammonia was lost at tank 106 (H.P. ammonia storage) due to blown rupture disc.	UNUR01
	Acid #3	11,000 pounds of 93 percent sulfuric sludge was lost at tank 612 due to washing for maintenance. Soda ash was used to neutralize.	UCCI09
January 18, 1972	Acid #1	81,612 pounds of 93 percent sulfuric acid was lost at tank 551 (near building 704-7) due to operator error. Soda ash was used to neutralize and flush ditch.	UCCI09, UNUR01, INCR01
January 19, 1972	Acid #3	2,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
January 27, 1972	Acid #3	1,500 pounds of 74 percent sulfuric was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
January 30, 1972	Acid #3	1,157 pounds of ammonia was lost from tank 106 due to blown rupture discs.	UCCI09
February 2, 1972	Acid #3	500 pounds of 74 percent residual was lost to the ground at the NAC building due to a line rupture.	UNUR01
	Acid #3	1,000 pounds of winter TNT mix was lost at the 702 circulator due to equipment failure. Soda ash was used to neutralize.	UCCI09

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
February 8, 1972	Acid #3	100,000 pounds (approximately) of was lost from 12A bulk storage due to over-pumping. Most of the overflow entered drain. Soda ash was used to neutralize.	UNUR01
February 10, 1972	Acid #3	1,500 pounds of TNT mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
February 16, 1972	Acid #3	2,500 pounds of tetryl mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
February 21, 1972	Acid #3	1,000 pounds of DNT mix was lost due to tank cleaning. Soda ash was used to neutralize.	UCCI09
February 22, 1972	Acid #3	2,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
	Acid #3	2,000 pounds of 93 percent sulfuric acid was lost from tank 552 due to operator error. Soda ash was used to neutralize.	UCCI09, UNUR01
March 1, 1972	Acid #3	22,000 pounds of anhydrous ammonia were lost due to blown rupture disc, and leaking packing glands.	UNUR01
March 17, 1972	Acid #3	1,500 pounds of ammonia was lost due to a blown rupture disc.	UNUR01
March 24, 1972	Acid #3	10,000 pounds of sulfuric acid sludge was lost from tank 408 due to cleaning and decontamination for maintenance. Soda ash was used to neutralize.	UNUR01
	Acid #3	1,100 pounds of 93 percent sulfuric sludge was lost at car spot 410 due to washing and decontamination of a tanker car. Soda ash was used to neutralize.	UNUR01
March 26, 1972	Acid #3	1,400 pounds of 93 pounds of sulfuric sludge was lost at car spot 410 due to washing and decontamination of a tanker car. Soda ash was used to neutralize.	UNUR01
March 29, 1972	Acid #3	1,900 pounds of 93 pounds of sulfuric sludge was lost at car spot 410 due to washing and decontamination of a tanker car. Soda ash was used to neutralize.	UNUR01
March 31, 1972	Acid #3	23,300 pounds of anhydrous ammonia was lost from ammonia storage and A.O.P. due to normal losses from draining of lines for repair, blowing of vaporizers, unloading, and other unavoidable losses.	UNUR01
April 2, 1972	Acid #3	1,000 pounds of anhydrous ammonia was lost at building 301-3-3 due to failure of packing in a valve.	UNUR01

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAKP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1990

Date	Location	Quantity and Material Spilled	Reference
April 6, 1972	Acid #3	13,046 pounds of oleum was lost at the west end of Acid Transfer Road due to a leak in a transfer line. Soda ash was used to neutralize.	UNUR01
April 26, 1972	Acid #3	10 pounds of 93 percent sulfuric acid was lost at the 93 percent truck loading spot.	UNUR01
April 27, 1972	Acid #3	4,000 pounds of 93 percent sulfuric acid was lost at sales tank 803 due to tank overfilling.	UNUR01
May 1 to 31, 1972	Acid #3	22,000 pounds of anhydrous ammonia was lost from ammonia storage and A.O.P. due to normal losses from draining of lines for repair, blowing of vaporizers and filters, unloading of tank cars, and other unavoidable losses.	UNUR01
May 2, 1972	Acid #3	5,000 pounds of 93 percent sulfuric acid was lost due to washing and decontamination of 6-inch transfer line from Acid #1 to Acid #3 areas. Soda ash was used to neutralize.	UNUR01
May 5, 1972	Acid #3	5,000 pounds of 74 percent N.A.C. residuals was lost due to washing and decontamination of 6-inch transfer line from Acid #1 to Acid #3 areas. Soda ash was used to neutralize.	UNUR01
	Acid #3	1,500 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and decontaminating. Soda ash was used to neutralize.	UNUR01
May 8, 1972	Acid #3	600 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and decontaminating. Soda ash was used to neutralize.	UNUR01
May 9, 1972	Acid #3	2,000 pounds of mixed acid sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
	Acid #3	1,800 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 11, 1972	Acid #3	200 pounds of toluene was lost at car spot 410 due to rail car steam cleaning.	UNUR01
May 12, 1972	Acid #3	1,100 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP**  
**PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
 (Source - Enhanced Preliminary Assessment Screening, September 1997)  
 Revised - October 1990

Date	Location	Quantity and Material Spilled	Reference
May 15, 1972	Acid #3	900 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 16, 1972	Acid #3	1,700 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 17, 1972	Acid #3	2,200 pounds of 93 percent sulfuric sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 19, 1972	Acid #3	1,400 pounds of F60 was lost at car spot 410 due to rail car washing and decontaminating. Soda ash was used to neutralize.	UNUR01
June 2, 1972	Acid #3	5,000 pounds of 93 percent sulfuric acid was lost due to transfer line decontamination. Soda ash was used.	ARMY01
	Acid #1	64,000 pounds of 93 percent sulfuric acid sludge was lost due to storage tank decontamination. Soda ash was used.	ARMY01
June 5, 1972	Acid #3	5,000 pounds of 74 percent sulfuric acid was lost due to transfer line decontamination. Soda ash was used.	ARMY01
June 7, 1972	Acid #3	2,500 pounds of tetryl mixed acid was lost at car spot 410 due to tank car decontamination for maintenance. Soda ash was used.	ARMY01, UNUR01
June 13, 1972	North Classification Yard	Ammonia car was leaking at dome. Car moved to Acid #3 and unloaded.	UNUR01
June 22, 1972	Acid #3	8,000 pounds of 74 percent sulfuric acid sludge was lost due to storage tank decontamination for maintenance. Soda ash was used.	ARMY01
June 26, 1972	Acid #1	9,500 pounds of 60 percent nitric acid was lost due to storage tank decontamination. Soda ash was used.	ARMY01
June 27, 1972	Acid #1	70,000 pounds of 93 percent sulfuric acid sludge was lost due to storage tank decontamination. Soda ash was used.	ARMY01
July 10, 1972	Acid #3	4,000 pounds of F60 was lost at tank 551 due to washing. Soda ash was put in drain to neutralize.	UNUR01
July 19, 1972	Acid #3	52,910 pounds of TNT mix was lost due to overflow of TNT mix tank 706. Soda ash was used to neutralize.	UNUR01

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
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Date	Location	Quantity and Material Spilled	Reference
	Acid #3	1,600 pounds of 93 percent sulfuric was lost at clear car spot 410 due to washing of two tank cars. Water (30,000 pounds) and soda ash (10,000 pounds) was used to dilute washings from each car.	UNUR01
July 29, 1972	Acid #3	10,000 pounds of 93 percent sulfuric acid was lost from tank 519 due to a popped rivet. Soda ash was used to neutralize.	UNUR01
August 5, 1972	Acid #3	37,500 pounds of 74 percent sulfuric acid sludge was lost at tank 618 due to cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
August 10, 1972	Acid #3	1,200 pounds of strong nitric acid was lost at car spot 413 due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09
August 14, 1972	Acid #1	5,000 pounds of strong nitric acid was lost at 300 tank due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09, UNUR01
	Acid #3	1,100 pounds of sulfuric acid was lost at car spot 410 due to washing and neutralizing of a tank car. Soda ash was used to neutralize.	UCCI09, UNUR01
August 15, 1972	Acid #3	1,000 pounds of oleum was lost at tank 404 due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09
	Acid #3	2,000 pounds of sulfuric acid sludge was lost due to tank washing. Soda ash was used to neutralize.	UCCI09
August 18, 1972	Acid #2	2,000 pounds of TNT mix was lost due to washing of the transfer line from Acid #2 to TNT #4. Soda ash was used to neutralize.	UCCI09, UNUR01
August 19, 1972	Acid #3	1,500 pounds of oleum (6.5%) was lost at tank 403 due to washing. Soda ash was used to neutralize.	UCCI09, UNUR01
August 22, 1972	Acid #3	2,500 pounds of ammonia was lost at sphere 101 due to a blown rupture disc.	UCCI09, UNUR01
August 23, 1972	Acid #3	4,700 pounds of 93 percent acid sludge was lost at tank 620 due to washing. Soda ash was used to neutralize.	UCCI09
August 25, 1972	Acid #3	8,000 pounds of tetrayl was lost at tank 754 due to washing for maintenance. Soda ash was used to neutralize.	UCCI09
August 29, 1972	Acid #3	1,500 pounds of strong nitric acid residue was lost at tank 619 due to leakage. Soda ash was used to neutralize.	UCCI09

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
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Date	Location	Quantity and Material Spilled	Reference
September, 1972	Acid #3	40,840 pounds of anhydrous ammonia was lost from ammonia storage and AOP due to normal loss from draining lines, blowing vaporizers and filters, unloading tank cars, and other unavoidable losses.	UNURO1
September 6, 1972	Acid #3	21,000 pounds of 74 percent sulfuric sludge was lost at tank 619 due to washing and neutralizing. Soda ash was used to neutralize.	UNURO1
	Acid #3	3,000 pounds of O.V. was lost at car spot 410 due to tanker car washing and neutralizing. Soda ash was used to neutralize.	UNURO1
September 22, 1972	Acid #3	1,800 pounds of TNT mix was lost at car spot 410 due to tanker car washing and neutralizing. Soda ash was used to neutralize.	UNURO1
	Acid #3	900 pounds of 64 percent nitric was lost at car spot 410 due to tanker car washing and neutralizing. Soda ash was used to neutralize.	UNURO1
September 29, 1972	Acid #3	9,000 pounds of tetryl mix sludge was lost a tank 752 due to tank washing and neutralizing. Soda ash was used to neutralize.	UNURO1
September 30, 1972	Acid #3	4,458 pounds of tetryl mix was lost due to tank 750 overflowing. Soda ash was used to neutralize. Separate report indicates loss was of TNT mix.	UNURO1
October, 1972	Acid #3	50,650 pounds of anhydrous ammonia was lost from ammonia storage and AOP due to normal loss from draining lines, blowing vaporizers and filters, unloading tank cars, and other unavoidable losses.	UNURO1
October 2, 1972	Acid #3	17,000 pounds of 93 percent sulfuric sludge was lost from tank 801 due to washing and neutralizing of tank for maintenance. Soda ash was used to neutralize.	UNURO1
October 10, 1972	Acid #3	2,500 pounds of O.V. was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNURO1
October 12, 1972	Acid #3	1,800 pounds of sulfuric sludge (?) was lost at car spot 410 due to tanker washing and decontamination. Soda ash was used to neutralize.	UNURO1
October 13, 1972	Acid #3	1,800 pounds of 93 percent sulfuric sludge was lost at car spot 410 due to tanker washing and decontamination. Soda ash was used to neutralize.	UNURO1

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
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Date	Location	Quantity and Material Spilled	Reference
October 19, 1972	Acid #3	119,608 pounds of 93 percent sulfuric sludge was lost at tank 520 due to washing and cleaning for maintenance. Soda ash was used to neutralize.	UNUR01
	Acid #3	1,000 pounds of F80 was lost at car spot 410 due to tanker washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
October 27, 1972	Acid #3	9,000 pounds of TNT mix sludge was lost at tank 709 due to tank washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
October 30, 1972	Acid #3	32,000 pounds of 93 percent sulfuric sludge was lost at tank 512 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
November 1, 1972	Acid #3	2,400 pounds of O.V was lost at car spot 410 due to tanker washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
November 7, 1972	Acid #3	7,200 pounds of sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01
November 8, 1972	Acid #3	6,000 pounds of sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01
November 9, 1972	Acid #3	6,000 pounds of sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01
November 10, 1972	Acid #3	29,759 pounds of 93 percent sulfuric sludge was lost from tank 803 due to washing and neutralizing. Soda ash was used to neutralize.	UNUR01
	Acid #3	3,700 pounds of 68 percent TNT residual was lost from tank 611 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
November 11, 1972	Acid #3	12,000 pounds of tetryl mix was lost from tank 750 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
November 13, 1972	Acid #3	2,000 pounds of 74 percent sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP**  
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Date	Location	Quantity And Material Spilled	Reference
November 14, 1972	Acid #3	3,600 pounds of sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01
November 20, 1972	Acid #3	2,000 pounds of TNT residual was lost due to washing and decontamination of TNT residual line from Acid #3 to TNT #6. Soda ash was used to neutralize.	UNUR01
December 12, 1972	Acid #3	5,000 pounds of 74 percent sulfuric acid was lost at tub 607 in the NAC building due to failure of the cooling coil. Acid was drained to the sewer with soda ash.	UNUR01
December 15, 1972	Acid #3	3,500 gallons of soda ash was lost to Grant Creek when an automatic control valve on tank opened due to a malfunctioning pH meter.	UNUR01
December 19, 1972	Acid #3	3,600 pounds of 68 percent sulfuric sludge was lost from tank 613 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
December 31, 1972	Acid #3	Ammonia was lost from tank 112 due to blown rupture disc.	UNUR01
February 5, 1973	Acid #3	2,400 pounds of tetryl mix was lost at car spot 412 1/2 due to overfilling.	UNUR01
May 8, 1973	Acid #3	3,500 pounds of tetryl mix was lost at car spot 411 1/2 due to operator error. Soda ash was used to neutralize.	UNUR01
May 13, 1973	Oleum Plant	There was a pile of sulfur on south side of building 1502-2 going west to a ditch 5 feet x 1 foot x 10 feet, 300-400 feet, 30 feet by 30 feet.	INCR01
May 24, 1973	Acid #3	126,000 pounds of TNT mix was lost at tank 709 due to operator error. Soda ash was used to neutralize.	UNUR01
June 5 1973	Acid #1	35,885 gallons of TNT Mix Acid was lost due to rupture of 22-year old tank (800). 16,000 gallons or 20% soda were used to neutralize.	SPIL01
June 6, 1973	Acid #1	Acid was lost from tank 800 resulting fumes disrupted activities at 704-7, 413, 704-19, 717, tetryl area, and TNT areas for over four hours. Volume lost not reported. Soda ash was used to neutralize.	UNUR01
June 12, 1973	Acid #1	TNT mix was lost from tank 710 due to holes in the tank. Soda ash was applied to the area north of the tank, Grant Creek, and at TS1248.	UNUR01
August 1, 1973	Acid #3	1,000 pounds of TNT mix was lost due to decontamination. Soda ash was used to neutralize.	SPIL02
August 6, 1973	Acid #3	1,200 pounds of oleum sludge was lost due to decontamination. Soda ash was used	SPIL02

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP**  
**PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
 (Source - Enhanced Preliminary Assessment Screening, September 1997)  
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Date	Location	Quantity And Material Spilled	Reference
August 7, 1973	Acid #2	13,900 pounds of TNT sludge was lost due to decontamination. Soda ash used.	SPIL02
	Acid #3	1,200 pounds of oleum was lost due to decontamination. Soda ash was used	SPIL02
August 9, 1973	Acid #3	1,200 pounds of oleum was lost due to tank car cleaning. Soda ash was used	SPIL02
August 9, 1973	Acid #1	7,000 pounds of Oleum was lost due to equipment failure. Soda ash was used to decontaminate	SPIL02
August 10, 1973	Acid #1	2,830 pounds of Ammonia was lost from tank 116 due to a blown rupture disc.	UNUR01, SPIL02
August 13, 1973	Acid #2	11,000 pounds of sulfuric acid was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02
	Acid #3	1,000 pounds of sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	
August 14, 1973	Acid #3	1,200 pounds of oleum sludge was lost due to tank car cleaning. Soda ash was used to decontaminate.	SPIL02
August 21, 1973	Acid #3	1,000 pounds of sulfuric acid was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02
August 23, 1973	Acid #2	9,000 pounds of sulfuric sludge was lost due to tank cleaning. Soda ash was used.	SPIL02
August 24, 1973	Acid #2	58,000 pounds of T-mix was lost due to decontamination of production facilities. Soda ash was used to decontaminate.	SPIL02
August 27, 1973	Acid #3	11,000 pounds of tetryl mix was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02
August 28, 1973	Acid #3	17,000 pounds of tetryl mix sludge was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02
August 29, 1973	Acid #2	6,805 pounds of tetryl mix sludge was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02
August 30, 1973	Acid #2	9,000 pounds of sulfuric sludge was lost due to tank washing. Soda ash was used.	SPIL02
October 14, 1973	Acid #2	A "bad" leak of 93 percent sulfuric acid occurred at tank 801 following a series of errors. Soda ash was used to neutralize.	UNUR01
November 6, 1973	Building 717	Mercury was blown from a manometer at the east bench of the instrument shop (Building 717) and sprayed the area. Area was washed.	UNUR01

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP**  
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Date	Location	Quantity and Material Spilled	Reference
December 14, 1973	Acid #3	3200 gallons of #2 fuel oil was lost into Jackson Creek and the Des Plaines River due to a ruptured storage tank outlet valve. Straw was used as a sorbent and valve was replaced.	JAAP01, HIST09, SPIL03
December 15, 1973	Center Toluene Farm	A leak was discovered at bulk storage tank #8 when the U.S. Coast Guard called concerning an oil slick on the Des Plaines River. A leaking valve was blocked and gravel was placed in the ditch to prevent further seepage to Jackson Creek. Oil in the moat was allowed to seep into the ground.	UNUR01
December 27, 1973	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost due to cleaning of storage tank 620. Soda ash was used neutralize.	UNUR01, SPIL03
January 9, 1974	Acid #1	5,600 pounds of 98 percent nitric acid was lost at tank 300 in the strong acid mix area due to overfilling. Soda ash was used to neutralize.	UNUR01
January 16, 1974	Acid #3	10,058 pounds of ammonia was lost from storage tank 111 due to a blown rupture disc.	UNUR01
January 18, 1974	Acid #3	1600 pounds of 98 percent sulfuric acid was lost from tank 408. Soda ash was used to neutralize.	UNUR01
January 29, 1974	Acid #3	1,800 pounds O.V. was lost from a tank car at car spot 410 during maintenance. Soda ash was used to neutralize.	UNUR01
	Acid #1	14,081 pounds of 100 percent nitric acid was lost when water coils inside of NAC tubs 603 and 604 broke. Soda ash was used to neutralize and then the tubs were drained to the sewer.	UNUR01
February 3, 1974	Acid #3	44,061 pounds of 93 percent sulfuric acid was lost from tank 805. Soda ash was used to neutralize.	UNUR01, SPIL04
February 8, 1974	Acid #3	1,000 pounds of sulfuric acid sludge was lost from 612 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04
	Acid #4	6,000 pounds of O.V. sludge was lost from tank 801 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04
February 12, 1974	Acid #3 (center Toluene Farm)	3,200 pounds of toluene was lost due to initial charging and flushing of a new toluene transfer line from the center toluene farm to the TNT #7 storage area.	UNUR01, SPIL04
February 14, 1974	Acid #3	350 pounds 74 percent sulfuric acid was lost at the sales truck spot. Water was used to wash down the area.	UNUR01

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP**  
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Date	Location	Quantity and Material Spilled	Reference
February 17, 1974	Acid #3	57,568 pounds of TNT mix was lost TNT mix tank 740 due to over-pumping. Soda ash was used to neutralize.	UNUR01, SPIL04
February 20, 1974	Acid #3	2,760 pounds of 68 percent sulfuric acid was lost from tank 613 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04
February 25, 1974	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost from tank 620 during cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04
March 8, 1974	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost from tank 622 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01
March 23, 1974	Acid #1	3,230 pounds of 93 percent sulfuric acid was lost from tank 403 at valve.	UNUR01
April 26, 1974	Acid #3	4,055 pounds of ammonia was lost from high pressure storage tank 109 due to blown rupture discs.	UNUR01
May 13, 1974	Oleum Plant	Sulfur was noted covering an area about 150 by 30 feet starting at Building 1502-2 and extending west to the ditch. A pile of sulfur was also present on the south side of 1502--2 on a concrete slab. Sulfur is also present where rail cars are unloaded and about 60 feet north of 605-3-2 (covering about 50 by 75 feet).	INCR01
May 21, 1974	Acid #3	10,000 pounds of F-60 sludge was lost from tank 718 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL05
May 28, 1974	Acid #1	9,385 pounds of nitric acid crystals and sludge were lost due to maintenance purposes. Soda ash was used to neutralize.	SPIL05
May 29, 1974	Acid #1	1,100 pounds of nitric crystals and sludge was lost from tank 701 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL05
May 30, 1974	Acid #1	9,385 pounds of strong nitric crystals and sludge was lost from 300 and 700 tanks due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL05
May 31, 1974	Acid #4	Rupture of an underground waste water line flushed oil residues from the ground at fuel oil unloading spot into a drainage ditch causing an oil sheen. Water line was repaired and oil retention materials were distributed in the ditch.	UNUR01

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP**  
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 (Source - Enhanced Preliminary Assessment Screening, September 1997)  
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Date	Location	Quantity and Material Spilled	Reference
June 11 & 12, 1974	Acid #1	15" of strong nitric acid sludge was lost from tank 301 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01
June 20 & 21, 1974	Acid #3	6" of strong nitric acid sludge was lost from tank 706 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 8, 1974	Acid #1	5" of strong nitric acid sludge was lost from tank 709 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 9, 1974	Acid #1	4,362 pounds of TNT mix sludge was lost from tank 706 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 11, 1974	Acid #2	2,850 pounds of weak nitric acid was lost at tank 204 due to operator error. Drainage ditch was blocked to prevent migration to public waters. Soda ash was used to neutralize.	UNUR01
August 12, 1974	Acid #1	3,121 pounds of TNT mix sludge was lost from tank 707 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 15, 1974	Acid #1	1,123 pounds of TNT mix sludge was lost from tank 706 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 16, 1974	Acid #1	4,362 pounds of TNT summer mix sludge was lost from tank 705 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 26, 1974	Acid #1	44,730 pounds of weak nitric acid was lost from 209 and 210 tanks.	UNUR01
September 6, 1974	Acid #1	12,723 pounds of sulfuric acid sludge was lost from tank 802 due to cleaning. Soda ash was used neutralize.	UNUR01
	Acid #1	12,723 pounds of sulfuric acid sludge was lost from tank 801 due to cleaning. Soda ash was used neutralize.	UNUR01
September 13, 1974	Acid #1	42,410 pounds of 93 percent sulfuric acid sludge was lost from tank 805 due to cleaning. Soda ash was used to neutralize.	UNUR01
September 24, 1974	Acid #1	42,410 pounds of 93 percent sulfuric acid sludge was lost from tank 804 due to cleaning. Soda ash was used to neutralize.	UNUR01
September 25, 1974	Acid #1	33,928 pounds of 93 percent sulfuric acid sludge was lost from tank 806 due to cleaning. Soda ash was used to neutralize.	UNUR01
September 30, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid residuals was lost from tank 401 due to cleaning. Soda ash was used to neutralize.	UNUR01

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R2000086264

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP**  
**PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
 (Source - Enhanced Preliminary Assessment Screening, September 1997)  
 Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
October 1, 1974	Acid #1	21,205 pounds of 93 percent sulfuric acid residuals was lost from tank 403 due to cleaning. Soda ash was used to neutralize.	UNUR01
October 2, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid residuals was lost from tank 405 due to cleaning. Soda ash was used to neutralize.	UNUR01
October 9, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid sludge was lost from tank 501 due to cleaning. Soda ash was used to neutralize.	UNUR01
October 10, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid sludge was lost from tank 502 due to cleaning. Soda ash was used to neutralize.	UNUR01
November 14, 1974	Acid #4	4,000 pounds of anhydrous ammonia was discharged in order to perform service on line.	UNUR01
November 16, 1974	Acid #3	39,380 pounds of 74 percent residual was lost at tank 604 riser spool. Soda ash was used to neutralize.	UNUR01
December 26, 1974	Acid #3	496 gallons of #2 fuel oil was lost at the fuel oil spot due to operator error. Straw was spread to absorb the oil.	UNUR01, SPILO6
April 21, 1975	Acid #3	There were two acid leaks, north east and northwest of tank 409.	INCR01
May 22, 1975	Acid #2	Strong nitric acid was lost at car spot 207 due to overfilling of a tank car. Volume lost is unknown. Soda ash was used to neutralize.	UNUR01
May 28, 1975	Acid #1	9,385 pounds of strong nitric crystals and sludge was lost from tanks 302 and 702 due to cleaning. Soda ash was used to neutralize.	UNUR01
June 10, 1975	Acid #3	There was an acid leak at the man hole of tank 404.	INCR01
June 19, 1975	Acid #4	All attempts at commissioning the direct strong nitric acid unit were suspended until August as leaks had developed in the storage tanks which could not be readily repaired.	HIST11
September 10, 1975	Acid #3	240 gallons of #2 fuel oil was discharged to Goose Creek when a rubber fitting ruptured on feed to SAC unit. Straw, sorbent booms, and pumps were used to clean up spill.	UCC109

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
March, 1980		An oil spill from the drum storage area affected Goose Creek. Plant personnel were able to prevent off-site migration.	HIST32

Note: The summary presented in the table includes all of the significant spill reports found. However, not all of the monthly reports were found. Monthly spill reporting was discontinued in March 1976 and was then done as spills occurred.

R2000086264

**TABLE E-1**  
**CHEMICALS USED, STORED, RELEASED, DISPOSED OF ON**  
**PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
**JOAAP, WILL COUNTY, ILLINOIS**

Section	Building	Substance	Used, Stored, Released, Disposed	Date	Quantity	Action	Reference
	801-8	DNT	Used	1966	616 pounds		HIST12
	802-9	DNT	Stored	Present			FIELO1
	803-6	Nitrotoluene	Used	1971			AEHA14
		DNT	Used	1971			AEHA14
		TNT	Used	1971			AEHA14
		Nitrogen dioxide	Used	1971			AEHA14
	803-7	Nitrotoluene	Used	1954-1955	313 pounds		DOTA14, DOTA15
		DNT	Used	1954-1955			DOTA14, DOTA15
		Nitric acid	Used	1954-1955			DOTA14, DOTA15
	803-9	DNT	Stored	Present			FIELO1
	806-6	TNT	Used	1971			AEHA14, DOTA25
	806-7	TNT	Used	1954-1955			DOTA14, DOTA15
		Nitric acid	Used	1955			DOTA15
		Sulfuric acid	Used	1955			DOTA15
	806-12	TNT	Used	1958			HIST22
	808-3	TNT	Used	1971			AEHA14, DOTA25
	812-2	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-3	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-4	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-5	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-6	Sulfuric Acid	Used	1971			AEHA14, DOTA25
		Nitric acid	Used	1971			AEHA14, DOTA25
		Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-7	Nitric acid	Used	1954-1955			DOTA14, DOTA15
		Sulfuric acid	Used	1954-1955			DOTA14, DOTA15
		Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-8	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-9	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-10	Tetranitromethane	Released			Discharge to ditch	UCCI04
	870-1	TNT	Used	1977			USOP29
	870-2	TNT	Used	1977			USOP29
	870-3	TNT	Used	1977			USOP29
	870-4	TNT	Used	1977			USOP29
	870-5	TNT	Used	1977			USOP29
	870-6	TNT	Used	1977			USOP29
	872-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
		TNT	Used				BEST10
	872-2	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-3	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-5	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-6	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	876-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	876-2	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	878-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	878-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	879-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04

**TABLE E-1**  
**CHEMICALS USED, STORED, RELEASED, DISPOSED OF ON**  
**PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
**JOAAP, WILL COUNTY, ILLINOIS**

Section	Building	Substance	Used, Stored, Released, Disposed	Date	Quantity	Action	Reference
L6	70-8	Varnish	Used	1954			DOTA14
		Thinner Vapor	Used	1954			DOTA14
L16	6-2	TNT	Used	1953			DOTA13
	6-4	RDX	Used	1963			DOTA11
		TNT	Used	1953			DOTA13
	6-6	TNT	Used	1953-1954			DOTA13, DOTA14
		Petroleum hydrocarbon thinner	Used	1954			DOTA14
L17	7-2	Teryl	Used	1950, 1953			DOTA12, DOTA13
		Barium stearate	Used	1953			DOTA13
	7-4	Teryl	Used	1950, 1953, 1955, 1957			DOTA12, DOTA13, DOTA15, DOTA16
		Barium Stearate	Used	1953			DOTA13
	7-6	Teryl	Used	1950, 1953			DOTA12, DOTA13
		Acetone	Used	1950			DOTA12
		Lead Acetate	Used	1953			DOTA15
	7-7	Black powder	Used	Unknown			FUEL01
L32	60-11	Chromate Cooling Water	Stored	Present	55 gallons		FUEL01
		Treatment Benz. Eater	Stored	Present	25 gallons		FUEL01
M5	1002-10	Dimethylazulene	Used	1971			AEGA12
	1005-10	Teryl	Used	1971			AEGA14
		Acetone	Used	1971			DOTA25
	1005-11	Teryl	Used	1971			AEGA14, DOTA25
	1008-1	TNT	Used	1955			HIST-4
	1008-2	Nitric acid	Used	1971			AEGA14
		Sulfuric acid	Used	1971			AEGA14
	1009-1-1	Teryl	Used	1957			HIST19, HIST20
		Dimethylazulene	Used	1957			HIST19, HIST20
		Dichloroethane	Used	1957			HIST19, HIST20
	1009-2-1	Teryl	Used	1971			AEGA14, DOTA25
M6	722-1	TNT	Used				FUEL01
		Sodium sulfate	Stored	Unknown	2,300 gallons	Two tanks removed	ATEC08
	722-6	Carbon tetrachloride	Stored	Present	1 pint		FUEL01
		Mercury	Stored	Present	3 pounds		FUEL01
	706-3	DNT	Used	Unknown			ARMY01
		Teryl	Used	Unknown			ARMY01
		Acids	Used	1974			HIST03
		TNT	Used	1974			ARMY01, HIST08
	801-6	Toluene	Used	1971			AEGA14, DOTA25
	801-7	Toluene	Used	1954, 1955			DOTA14, DOTA15
		Nitrotoluene	Used	1954, 1955			DOTA14, DOTA15
		Sulfuric acid	Used	1954, 1955			DOTA14, DOTA15
		Nitric acid	Used	1954, 1955			DOTA14, DOTA15
	801-9	DNT	Stored	Present	313 pounds		FUEL01
	802-2	Sulfuric acid, fuming	Used	1945			HIST38
		Bi-oil (DNT)	Used	1945			HIST38
	802-6	TNT	Used	1971			AEGA14
		Toluene	Used	1971			AEGA14
		Benzene	Used	1971			AEGA14
		DNT	Used	1971			AEGA14, DOTA25
		Nitrogen dioxide	Used	1971			AEGA14, DOTA25
	802-7	Nitromethane	Used	1954-1955			DOTA14, DOTA15
		DNT	Used	1954-1955			DOTA14, DOTA15
		TNT	Used	1954-1955			DOTA14, DOTA15
		Nitric acid	Used	1954-1955			DOTA14, DOTA15
		Sulfuric acid	Used	1954-1955			DOTA14, DOTA15

Source: Enhanced Preliminary Assessment Screening/Environmental Baseline Study, Land Transfer to the State of Illinois for Industrial Parks, Sept. 1997.

**TABLE E-1**  
**CHEMICALS USED, STORED, RELEASED, DISPOSED OF ON**  
**PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
**JOAAP, WILL COUNTY, ILLINOIS**

Section	Building	Substance	Used, Stored, Released, Disposed	Date	Quantity	Action	Reference
	879-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	885-1	Waste acid	Used	Unknown			UCCI04
	885-2	Waste acid	Used	Unknown			UCCI04
M7	860-2	Sulfuric acid	Used	1971		Incinerator	AEHA14
	861-1	TNT	Disposed	Unknown		Incinerator	THAM01
	861-2	TNT	Disposed	Unknown		Incinerator	THAM01
	861-3	TNT	Disposed	Unknown		Incinerator	THAM01
	861-4	TNT	Disposed	Unknown		Incinerator	THAM01
	861-5	TNT	Disposed	Unknown		Incinerator	THAM01
	861-6	TNT	Disposed	Unknown		Incinerator	THAM01
M8	302-1-1	Acid	Used				UCCI04
	302-3-1	Nitric acid	Stored	1971			AEHA14
	303-3-1	Nitric acid	Used	1954-1955,			AEHA14, DOTA14,
				1971			DOTA15
		Sulfuric acid	Used	1971			AEHA14
	308-3-6	Sulfuric acid	Used	1971			AEHA14
	354-9	Sulfur	Stored	Present			FIEL01
	1501	Sulfur	Used	1954			UCCI04, DOTA14
		Sulfuric acid, fuming	Stored	1955			DOTA15
	1501-1	Sulfur	Used	Unknown			UCCI04
	1502	Sulfur	Used	Unknown			UCCI04
	1502-1	Sulfur	Used	Unknown			UCCI04
	1502-2	Sulfur	Used	Unknown			UCCI04
M15	505-1-2	Cosmoline 1102	Stored	Present			FIEL01
	812-1	Tetranitromethane	Released			Discharge to ditch	UCCI04
M16	415-1	Lime	Used	1955			DOTA15
		Alum	Used	1955			DOTA15
	716-3	Paint pigments	Used	1955			DOTA15
		Paints Thinner	Used	1955			DOTA15
		Chlorinated hydrocarbons	Used	1955			DOTA15
		Paint	Used	1971			AEHA14
		Paint	Stored	Present	20 gallon		FIEL01
		Oil	Stored	Present	55 gallon		FIEL01
M103	TS-1250	Herbicides	Used	Unknown			USOP52
		Insecticides	Used	Unknown			USOP52
		Ammonia	Used	Unknown			USOP52
M104	411	Chlorine	Stored	1990			UCCI01
	505-2	Chlorine	Stored	1990			UCCI01
	715-12	Benzene	Stored	Unknown			FIEL01
	717	Lead	Used	1971			AEHA14
		Methyl chloroform	Used	1971			AEHA14
		Perchloroethylene	Used	1971			AEHA14
		Stoddard solvent	Used	1971			AEHA14
		Cadmium	Used	1971			DOTA25
		Paints and thinners	Used	1954			DOTA14
		Chlorinated hydrocarbon solvent	Used	1955			DOTA15
		Oils	Used	1955			DOTA15
		Coolants	Used	1955			DOTA15
	718-1	Chlorinated hydrocarbons	Used	1954			DOTA14
		Solvent	Stored	Present	20 gallon		FIEL01
M115	412-1	Fuel oil	Stored	1991	1,000 gallons	Tank removed	BEST02

## Exhibit E

Legal Description -- Property Earmarked for Transfer to the Forest Service -- Property Excepted from  
Certain Land Use Restriction (Article X.G.2)

PART OF THE SOUTHWEST QUARTER SECTION 24 AND PART OF THE NORTHWEST QUARTER OF SECTION 25, TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE NORTH 1 DEGREE 51 MINUTES 20 SECONDS WEST ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER 2622.94 FEET TO THE NORTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE NORTH 87 DEGREES 56 MINUTES 55 SECONDS EAST ALONG THE NORTH LINE OF SAID SOUTHWEST QUARTER 2626.83 FEET; THENCE SOUTH 9 DEGREES 27 MINUTES 15 SECONDS WEST 723.63 FEET TO THE WEST LINE OF THE EAST 150.00 FEET OF SAID SOUTHWEST QUARTER; THENCE SOUTH 1 DEGREE 52 MINUTES 08 SECONDS EAST ALONG SAID WEST LINE 731.49 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH 1440.58 FEET OF THE AFORESAID SOUTHWEST QUARTER; THENCE SOUTH 87 DEGREES 56 MINUTES 55 SECONDS WEST ALONG SAID SOUTH LINE 663.65 FEET TO A POINT ON THE EAST LINE OF THE WEST 1821.42 FEET OF SAID SOUTHWEST QUARTER; THENCE NORTH 1 DEGREE 51 MINUTES 20 SECONDS WEST ALONG SAID EAST LINE 1110.58 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH 330.00 FEET OF SAID SOUTHWEST QUARTER; THENCE SOUTH 87 DEGREES 56 MINUTES 55 SECONDS WEST ALONG SAID SOUTH LINE 1381.43 FEET TO A POINT ON THE EAST LINE OF THE WEST 440.00 FEET OF SAID SOUTHWEST QUARTER; THENCE SOUTH 1 DEGREE 51 MINUTES 20 SECONDS EAST ALONG SAID EAST LINE 1110.58 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH 1440.58 FEET OF SAID SOUTHWEST QUARTER; THENCE NORTH 87 DEGREES 56 MINUTES 55 SECONDS EAST ALONG SAID SOUTH LINE 320.39 FEET TO A POINT ON THE EAST LINE OF THE WEST 760.39 FEET OF SAID SOUTHWEST QUARTER; THENCE SOUTH 1 DEGREE 51 MINUTES 20 SECONDS EAST ALONG SAID EAST LINE 1183.03 FEET TO THE SOUTH LINE OF SAID SOUTHWEST QUARTER; THENCE SOUTH 1 DEGREE 12 MINUTES 13 SECONDS EAST 40.00 FEET; THENCE SOUTH 49 DEGREES 20 MINUTES 41 SECONDS WEST 976.61 FEET TO THE WEST LINE OF THE NORTHWEST QUARTER OF AFORESAID SECTION 25; THENCE NORTH 1 DEGREE 45 MINUTES 06 SECONDS WEST ALONG SAID WEST LINE 650.02 FEET TO THE POINT OF BEGINNING, IN WILL COUNTY, ILLINOIS, CONTAINING 74.78 ACRES MORE OR LESS.

## Exhibit F

## Legal Description -- Groundwater Management Zone (Article XI.A)

GROUNDWATER MANAGEMENT ZONE: THAT PART OF SECTIONS 25, 26, 35, AND 36 IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 25; THENCE EASTERLY ALONG THE NORTH LINE OF SAID NORTHEAST QUARTER TO THE EAST LINE OF THE WEST 1500.00 FEET OF SAID NORTHEAST QUARTER OF SECTION 25; THENCE SOUTHERLY ALONG SAID EAST LINE AND SOUTHERLY ALONG THE EAST LINE OF THE WEST 1500.00 FEET OF THE SOUTHEAST QUARTER OF SAID SECTION 25 TO THE INTERSECTION WITH A LINE EXTENDING FROM A POINT ON THE EAST LINE OF SAID SOUTHEAST QUARTER WHICH IS 2222.41 FEET NORTH OF THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER, TO A POINT ON THE WEST LINE OF SAID SOUTHEAST QUARTER WHICH IS 2219.56 FEET NORTH OF THE SOUTHWEST CORNER OF SAID SOUTHEAST QUARTER; THENCE WESTERLY ALONG SAID LINE TO THE AFORESAID WEST LINE OF THE SOUTHEAST QUARTER; THENCE SOUTHERLY ALONG SAID WEST LINE AND SOUTHERLY ALONG THE EAST LINE OF THE WEST HALF OF AFORESAID SECTION 36 TO THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 36; THENCE WESTERLY ALONG SAID SOUTH LINE TO THE EAST LINE OF THE WEST 1660.00 FEET OF SAID SOUTHWEST QUARTER; THENCE NORTHERLY ALONG SAID EAST LINE TO THE NORTH LINE OF THE SOUTH 1930.00 FEET OF SAID SOUTHWEST QUARTER; THENCE WESTERLY ALONG SAID NORTH LINE AND WESTERLY ALONG THE NORTH LINE OF THE SOUTH 1930.00 FEET OF THE SOUTHEAST QUARTER OF AFORESAID SECTION 35 TO THE WEST LINE OF THE EAST 1770.00 FEET OF SAID SOUTHEAST QUARTER; THENCE SOUTHERLY ALONG SAID WEST LINE TO THE SOUTH LINE OF SAID SOUTHEAST QUARTER; THENCE WESTERLY ALONG SAID SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 35 TO A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTH 06 DEGREES 05 MINUTES 12 SECONDS EAST ALONG SAID PARALLEL LINE 254.34 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 18 DEGREES 04 MINUTES 43 SECONDS WEST 1830.93 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 02 DEGREES 00 MINUTE 44 SECONDS WEST 50.00 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1010.00 FEET; THENCE NORTH 24 DEGREES 02 MINUTES 35 SECONDS WEST 593.70 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1020.00 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 997.97 FEET; THENCE NORTH 87 DEGREES 56 MINUTES 38 SECONDS EAST 799.20 FEET; THENCE NORTH 43 DEGREES 09 MINUTES 10 SECONDS EAST 170.31 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 34 SECONDS WEST 900.01 FEET; THENCE SOUTH 87 DEGREES 56 MINUTES 38 SECONDS WEST 810.01 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 770.00 FEET; THENCE NORTH 30 DEGREES 31 MINUTES 22 SECONDS EAST 450.96 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 160.00 FEET; THENCE NORTH 88 DEGREES 25 MINUTES 08 SECONDS EAST 617.05 FEET; THENCE NORTH 33 DEGREES 23 MINUTES 57 SECONDS EAST 261.50 FEET; THENCE NORTH 02 DEGREES 14 MINUTES 08 SECONDS WEST 716.02 FEET; THENCE SOUTH 88 DEGREES 26 MINUTES 35 SECONDS WEST 411.56 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 422.50 FEET; THENCE NORTH 32 DEGREES 50 MINUTES 39 SECONDS EAST 475.54 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 750.00 FEET; THENCE NORTH 17 DEGREES 51 MINUTES 34 SECONDS WEST 378.45 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST



Exhibit F (Continued)

Legal Description -- Groundwater Management Zone (Article XI.A)

365.01 FEET; THENCE NORTH 51 DEGREES 00 MINUTE 51 SECONDS EAST 553.31 FEET;  
THENCE NORTH 87 DEGREES 58 MINUTES 20 SECONDS EAST 266.44 FEET; THENCE NORTH  
65 DEGREES 07 MINUTES 25 SECONDS EAST 479.10 FEET; THENCE NORTH 01 DEGREE 12  
MINUTES 13 SECONDS WEST 776.91 FEET; THENCE NORTH 49 DEGREES 20 MINUTES 41  
SECONDS EAST 64.04 FEET TO THE NORTH LINE OF THE NORTHWEST QUARTER OF  
AFORESAID SECTION 25; THENCE EASTERLY ALONG SAID NORTH LINE TO THE POINT OF  
BEGINNING, CONTAINING 826.99 ACRES MORE OR LESS.

## Exhibit G

## Legal Descriptions -- Deed Restricted Areas 1 and 2 (Article XII.A)

DEED RESTRICTED AREA ONE: THAT PART OF SECTIONS 25, 26, 35, AND 36 IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF THE WEST HALF OF THE WEST HALF OF SAID SECTION 25; THENCE SOUTHERLY ALONG THE EAST LINE OF SAID WEST HALF OF THE WEST HALF OF SECTION 25 AND SOUTHERLY ALONG THE EAST LINE OF THE WEST HALF OF THE WEST HALF OF AFORESAID SECTION 36 TO THE NORTH LINE OF THE SOUTH 1930.00 FEET OF THE SOUTHWEST QUARTER OF SAID SECTION 36; THENCE WESTERLY ALONG SAID NORTH LINE AND WESTERLY ALONG THE NORTH LINE OF THE SOUTH 1930.00 FEET OF THE SOUTHEAST QUARTER OF AFORESAID SECTION 35 TO THE WEST LINE OF THE EAST 1770.00 FEET OF SAID SOUTHEAST QUARTER; THENCE SOUTHERLY ALONG SAID WEST LINE TO THE SOUTH LINE OF SAID SOUTHEAST QUARTER; THENCE WESTERLY ALONG SAID SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 35 TO A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTH 06 DEGREES 05 MINUTES 12 SECONDS EAST ALONG SAID PARALLEL LINE 254.34 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 18 DEGREES 04 MINUTES 43 SECONDS WEST 1830.93 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 02 DEGREES 00 MINUTE 44 SECONDS WEST 50.00 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1010.00 FEET; THENCE NORTH 24 DEGREES 02 MINUTES 35 SECONDS WEST 593.70 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1020.00 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 997.97 FEET; THENCE NORTH 87 DEGREES 56 MINUTES 38 SECONDS EAST 799.20 FEET; THENCE NORTH 43 DEGREES 09 MINUTES 10 SECONDS EAST 170.31 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 34 SECONDS WEST 900.01 FEET; THENCE SOUTH 87 DEGREES 56 MINUTES 38 SECONDS WEST 810.01 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 770.00 FEET; THENCE NORTH 30 DEGREES 31 MINUTES 22 SECONDS EAST 450.96 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 160.00 FEET; THENCE NORTH 88 DEGREES 25 MINUTES 08 SECONDS EAST 617.05 FEET; THENCE NORTH 33 DEGREES 23 MINUTES 57 SECONDS EAST 261.50 FEET; THENCE NORTH 02 DEGREES 14 MINUTES 08 SECONDS WEST 716.02 FEET; THENCE SOUTH 88 DEGREES 26 MINUTES 35 SECONDS WEST 411.56 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 422.50 FEET; THENCE NORTH 32 DEGREES 50 MINUTES 39 SECONDS EAST 475.54 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 750.00 FEET; THENCE NORTH 17 DEGREES 51 MINUTES 34 SECONDS WEST 378.45 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 365.01 FEET; THENCE NORTH 51 DEGREES 00 MINUTE 51 SECONDS EAST 553.31 FEET; THENCE NORTH 87 DEGREES 58 MINUTES 20 SECONDS EAST 266.44 FEET; THENCE NORTH 65 DEGREES 07 MINUTES 25 SECONDS EAST 479.10 FEET; THENCE NORTH 01 DEGREE 12 MINUTES 13 SECONDS WEST 776.91 FEET; THENCE NORTH 49 DEGREES 20 MINUTES 41 SECONDS EAST 64.04 FEET TO THE NORTH LINE OF THE NORTHWEST QUARTER OF AFORESAID SECTION 25; THENCE EASTERLY ALONG SAID NORTH LINE TO THE POINT OF BEGINNING, CONTAINING 419.13 ACRES MORE OR LESS.

Exhibit G (Continued)  
Legal Descriptions -- Deed Restricted Areas 1 and 2 (Article XII.A)

DEED RESTRICTED AREA TWO. THAT PART OF THE NORTH HALF OF SECTION 25, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS; LYING WITHIN A CIRCLE HAVING A RADIUS OF 500 FEET, THE CENTER OF SAID CIRCLE BEING LOCATED 1178.00 FEET SOUTH OF THE NORTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 25, AND 344.00 FEET EAST OF THE WEST LINE OF SAID NORTHEAST QUARTER, CONTAINING 18.03 ACRES, MORE OR LESS.

## Exhibit H

## Permanent Ingress and Egress Easement --Will County Landfill Parcel (Article III.F)

THAT PART OF SECTION 18, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 18, A DISTANCE OF 3650.50 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID SOUTH LINE SOUTH 87 DEGREES 49 MINUES 13 SECONDS WEST 80.00 FEET; THENCE NORTH 1 DEGREE 46 MINUTES 57 SECONDS WEST 4097.02 FEET; THENCE NORTH 88 DEGREE 21 MINUTES 16 SECONDS EAST 2873.94 FEET; THENCE SOUTH 79 DEGREES 11 MINUTES 35 SECONDS EAST 436.82 FEET; THENCE SOUTH 85 DEGREES 00 MINUTES 54 SECONDS EAST 185.05 FEET; THENCE NORTH 88 DEGREES 28 MINUTES 27 SECONDS EAST 264.28 FEET TO THE EAST LINE OF AFORESAID SECTION 18; THENCE SOUTH 1 DEGREE 31 MINUTES 23 SECONDS EAST ALONG SAID EAST LINE 80.00 FEET; THENCE SOUTH 88 DEGREES 28 MINUTES 27 SECONDS WEST 268.82 FEET; THENCE NORTH 85 DEGREES 00 MINUTES 54 SECONDS WEST 193.67 FEET; THENCE NORTH 79 DEGREES 11 MINUTES 35 SECONDS WEST 432.16 FEET; THENCE SOUTH 88 DEGREES 21 MINUTES 16 SECONDS WEST 2485.02 FEET; THENCE SOUTH 43 DEGREES 17 MINUTES 10 SECONDS WEST 423.76 FEET; THENCE SOUTH 1 DEGREE 46 MINUTES 57 SECONDS EAST 3716.27 FEET TO THE POINT OF BEGINNING, IN WILL COUNTY, ILLINOIS, CONTAINING 15.315 ACRES, MORE OR LESS.

R2000086264

**Prepared by:**

Mr. Charles E. Woods  
Attorney Advisor  
Real Estate Division  
Louisville District  
U.S. Army Corps of Engineers  
600 Martin Luther King Jr. Place  
Louisville, Kentucky 40201-0059

**After Recording Mail To:**

Kevin P. Breslin  
Katz Randall Weinberg & Richmond  
333 W. Wacker Drive, Suite 1800  
Chicago, Illinois 60606

**MARY ANN STUKEL**  
**WILL COUNTY RECORDER**  
**AFFIDAVIT OF METES AND BOUNDS**

R2000086264

STATE OF ILLINOIS 1  
 COUNTY OF WILL 155

Paul W. Johnson being duly sworn on oath, states that affiant resides at  
Arlington, VA. That the attached deed is not in violation  
 of Section 1 of the Plat Act (765 ILCS 205/1) for one of the following reasons:

- ① The division or subdivision of land into parcels or tracts of 5.0 acres or more in size which does not involve any new streets or easements of access.
2. The division of lots or blocks of less than one (1) acre in any recorded subdivision which does not involve any new streets or easements of access.
3. The sale or exchange of parcels of land between owners of adjoining and contiguous land.
4. The conveyance of parcels of land or interests therein for use as right of way for railroads or other public utility facilities and other pipe lines which does not involve any new streets or easements of access.
5. The conveyance of land owned by a railroad or other public utility which does not involve any new streets or easements of access.
6. The conveyance of land for highway or other public purposes or grants or conveyances relating to the dedication of land for public use or instruments relating to the vacation of land impressed with a public use.
7. Conveyances made to correct descriptions in prior conveyances.
8. The sale or exchange of parcels or tracts of land following the division into no more than two (2) parts of a particular parcel or tract of land existing on July 17, 1959 and not involving any new streets or easements of access.
9. The sale of a single lot of less than 5.0 acres from a larger tract when a survey is made by an Illinois Registered Land Surveyor; provided, that this exemption shall not apply to the sale of any subsequent lots from the same larger tract of land, as determined by the dimensions and configuration of the larger tract on October 1, 1973, and provided also that this exemption does not invalidate any local requirements applicable to the subdivision of land.
10. This conveyance is of land described in the same manner as title was taken by grantor(s).

CIRCLE NUMBER ABOVE WHICH IS APPLICABLE TO ATTACHED DEED.

AFFIANT further states that affiant makes this affidavit for the purpose of inducing the Recorder of Deeds of Will County, Illinois, to accept the attached deed for recording.

SUBSCRIBED AND SWORN TO BEFORE ME

this 1st day of August, 192000  
Patricia A. Blum  
 Notary Public

UNITED STATES OF AMERICA

Paul W. Johnson  
 AFFIANT

FEB 04 '00 09:16

1 815 740 4638

PAGE 02

\*\* TOTAL PAGE 06 \*\*

103

## **Attachment 34**

Reference Document 2



**QUIT CLAIM DEED OF CONVEYANCE  
WITH LAND USE RESTRICTIONS AND  
COVENANTS AND GROUNDWATER  
RESTRICTIONS AND COVENANTS**

**MARY ANN STUKEL**

**91P**

**Will County Recorder**

**Will County**

**R 2002063838**

**Page 1 of 91**

**LAK Date 04/12/2002 Time 13:52:39**

**Recording Fees: 0.00**

**THIS QUIT CLAIM DEED OF CONVEYANCE** is made and entered into by the UNITED STATES OF AMERICA (the "GRANTOR"), acting by and through the Deputy Assistant Secretary of the Army (I&H) pursuant to a delegation of authority from the SECRETARY OF THE ARMY (the "Army"), under and pursuant to the powers and authorities contained in the provisions of Section 2922 of the National Defense Authorization Act For Fiscal Year 1996 (Public Law No. 104-106, Division B, Title XXIX, Subtitle B, Sections 2901 *et. seq.*, approved February 10, 1996), C/O Commander and District Engineer, United States Army Corps of Engineers, Louisville District, ATTN: CELRL-RE-M, P.O. Box 59, Louisville, Kentucky 40201-0059, (hereinafter "Grantor"), and County of Will, Illinois, (hereinafter "Grantee"), acting by and through the County of Will, 302 N. Chicago Street, Joliet, Illinois 60432.

**WITNESSETH:** That for the consideration as set forth in paragraph I of this Quit Claim Deed Of Conveyance, the Grantor does hereby convey and quit claim to the Grantee, its successors, assigns, future owners, heirs, and executors, all interest in the real estate, described in Exhibit "A", located in Will County, Illinois, (hereinafter "the Property").

**I. CONSIDERATION**

In accordance with Public Law Section 2922 of the National Defense Authorization Act for Fiscal Year 1996 (Public Law No. 104-106, Division B, Title XXIX, Subtitle B, Section 2901, approved February 10, 1996), the consideration for this conveyance is the construction and operation of a landfill. This conveyance is made without compensation and subject to the conditions herein set forth.

**II. EASEMENTS AND RIGHTS-OF-WAY**

Grantor does hereby convey a temporary roadway, water, electric, gas, and telephone easement and right-of-way in, on, over, and across the tract of real estate, as described in Exhibit "B" attached hereto and incorporated herein. The temporary

roadway, water, electric, gas, and telephone easement and right-of-way herein conveyed shall be subject to the following easement rights, conditions, and covenants:

A. The subject easement and right-of-way is reserved for the primary use and benefit of the Grantee, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors.

B. The subject easement and right-of-way shall be used by County of Will, Illinois, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors, for nonexclusive/temporary roadway and nonexclusive/temporary utility access to the tract of real estate conveyed herein.

C. Grantee, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors shall have the temporary right to reconstruct or improve, use, and maintain the existing roadway (Road 2 West) located within the boundary of the subject easement and right-of-way. The condition of the existing roadway will be documented by Grantee and Grantor prior to its use. During the term of the subject easement, Grantee shall maintain and repair the referenced roadway. Upon termination of the temporary easement, Grantee shall repair the referenced roadway to its original, documented condition, reasonable wear and tear excepted, or to a condition acceptable to Grantor.

D. Grantee, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors shall have the nonexclusive/temporary right to use the subject easement as a utility corridor (water, electric, gas, and telephone). The referenced right shall include, but shall not be limited to, the location, construction, operation, maintenance, alteration, repair, and patrol of underground and overhead water, electric, gas, and telephone utilities and appurtenances thereto; together with the right to trim, cut, fell, and remove therefrom all trees, underbrush, obstructions, and other vegetation, structures, or obstacles within the boundary of the subject easement and right-of-way.

E. The Grantor, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors shall have such rights and privileges as may be used without interfering with or abridging the rights and easement herein conveyed by the Grantor.

F. Upon the transfer of the property known as Joliet Army Ammunition Plant (JOAAP) parcels L16, L17, and parts of L14 and L15 to the State of Illinois pursuant to Section 2923 of the aforesaid legislation, and when a permanent access road is completed and useable, Grantor will release the temporary roadway, water, electric, gas, and telephone easement and right-of-way. When the temporary easement is terminated, the Grantor will convey a permanent easement to the Grantee over the property described in Exhibit 'C' attached hereto.

### III. "AS IS" AND "WHERE IS" CONDITION

Except as otherwise expressly provided herein, or by applicable law, the Property, including all improvements located thereon, is conveyed "AS IS" and "WHERE IS" without representation, warranty, or guaranty by the Grantor as to the quantity, quality, character, title, condition, size or kind, or that the same is in condition or fit to be used for the purpose for which intended, and no claim for allowance or deduction upon such grounds will be considered. There is no obligation on the part of the Grantor to make any alterations, repairs or additions. Except as otherwise expressly provided herein or by applicable law the Grantor shall not be liable for any latent or patent defects to or on the Property, including all improvements located thereon. Except as otherwise expressly provided herein or by applicable law, the Grantee acknowledges that the Grantor has made no representation or warranty concerning the condition or state of repair of the Property, including all improvements located thereon, nor any agreement or promise to alter, improve, adapt, or repair any portion of the Property.

### IV. CONDITION OF CONVEYANCE

This conveyance shall be subject to the condition that the Department of the Army, the Department of Veterans Affairs, and the Department of Agriculture (or their representatives, agents, contractors, successors, assigns, future owners, heirs, and executors) may use the landfill established on the Property conveyed under subsection (a) of P.L. 104-106, Section 2922, for the disposal of non-hazardous solid waste related to any restoration and cleanup of Arsenal property pursuant to the Illinois Land Conservation Act of 1995 (Public Law 104-106). Such use shall be subject to applicable environmental laws and at no cost to the Federal Government.

### V. REVERSIONARY INTEREST

If, at the end of the five-year period beginning on the date of the conveyance, the Secretary of Agriculture determines that the Property is not opened for operation as a landfill, then, at the option of the Secretary of Agriculture, all right, title, and interest in and to the Property, including improvements thereon, shall be included in the Midewin National Tallgrass Prairie. In the event the United States exercises its option to cause the Property to revert, the United States shall have the right of immediate entry onto the Property.

### VI. JOAAP CERCLA ENVIRONMENTAL PROTECTION PROVISIONS AND DEED RESTRICTIONS

The following conditions, restrictions, and notifications are set forth herein to ensure protection of human health and the environment and to preclude any interference with ongoing, completed, or future remediation activities at Joliet Army Ammunition Plant.

A. **PURPOSE AND INTENT.** The entire property to be transferred to County of Will, Illinois (hereinafter "Grantee") as described in Exhibit "A", which is attached hereto and incorporated herein, shall be referred to herein as the "Property." In accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, the following deed restrictions shall form part of any deed or other agreement proposed to govern the transfer of Property, which consists of approximately 455 acres in the south central portion of the Load Assemble Pack (LAP) Area. The parcel numbers of this proposed transfer include L114 and all but the southernmost portion of L6. The proposed transfer includes 21 building/structures. A listing of the buildings/structures is at Exhibit "D" attached hereto and made a part hereof. Currently, the only occupied building is the electrical substation, Building 22-1. A site map of the Property to be transferred is at Exhibit "E". Exhibit "F" is a "Plat of Survey for the Will County Landfill at the Joliet Arsenal" Parcel 1.

#### B. CERCLA REMEDIATION

1. The Grantor acknowledges that JOAAP has been identified as a National Priorities List (NPL) site under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended. The Grantee acknowledges that the Grantor has provided it with a copy of the JOAAP Federal Facility Agreement (FFA) entered into by the United States Environmental Protection Agency (USEPA), Region V, the State of Illinois, and the Department of the Army, dated June 1989 and the JOAAP Record of Decision (ROD) and shall provide the Grantee with a copy of any amendments thereto.

2. The Grantee, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors, agree that the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD or amendments thereto, take precedence over the terms of this Deed should a conflict arise. The Grantee, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors, further agrees that notwithstanding any other provision of this Deed, the Grantor assumes no liability to the Grantee, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors, should implementation of the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD or amendments thereto, interfere with their use of the Property; and said parties shall have no claim on account of any such interference against the United States or any officer, agent, employee or contractor.

3. The Grantee, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors shall not undertake activities on the Property that would interfere with or impede the completion of the CERCLA clean up at the JOAAP NPL site. The Grantee, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors shall comply with any institutional controls established or put in place by the Grantor relating to the Property which are required by the JOAAP ROD or amendments thereto or any subsequent ROD or amendments thereto issued before or after the date of this Deed.

4. All subsequent conveyances of the Property or any interests therein, by Grantee, its successors, assigns, future owners, heirs, and executors, shall be expressly subject to the rights and duties of the Grantor to continue operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA, the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD, or amendments thereto. The Grantee, its successors, assigns, future owners, heirs, and executors, shall provide:

a. Pre-transfer Notice – 30 days written notice prior to any such conveyance (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities) to the Grantor, United States Environmental Protection Agency (USEPA), and Illinois Environmental Protection Agency (IEPA), and;

b. Deed/Lease – Within 14 days after the effective date of the transaction, Grantee, its successors and assigns, future owners, heirs and executors, shall provide to the Grantor, USEPA, and IEPA, copies of the deed, lease, or other conveying instrument evidencing such transaction.

5. The Grantor reserves for itself and its representatives, the USEPA, and the IEPA and their representatives, an easement and unrestricted right of access to the Property in any case in which the Grantor or the above named regulators are obligated or required to undertake any additional environmental response action, investigation, inspection, enforcement, monitoring, sampling, testing, remedial action, corrective action, or any other action necessary for the Grantor or the named regulators to meet their environmental responsibilities as provided for by law and this Deed, the JOAAP FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD or amendment thereto, or other applicable environmental laws and regulations. This reservation includes the right to access and use of utilities on the Property at reasonable cost to the United States. In exercising this right of access, except in case of imminent endangerment to human health or the environment, the Grantor shall give the Grantee, or the then record owner, reasonable notice of actions to be taken on the Property and shall use reasonable means, without significant additional cost to the Grantee, to avoid or minimize interference with the use of the Property. This easement and right of access shall be binding on the Grantee, its successors, assigns, future owners, heirs, and executors and shall run with the land. The Grantee, its successors, assigns, future owners, heirs, and executors shall include the provisions of this Section in all subsequent deeds, leases, transfer, or conveyance documents relating to the Property or any portion thereof.

6. Except as otherwise provided by law, including, but not limited to, CERCLA and the Illinois Land Conservation Act of 1995, P.L. 104-106, the Grantor shall not incur liability for additional response action or corrective action found to be necessary after the date of transfer unless such release or such newly discovered substance was due to Grantor's activities, ownership, use or occupation of the Property, or the activities of Grantor's contractors and/or agents.

## VII. LAND USE AND GROUNDWATER RESTRICTIONS

A. PURPOSE AND INTENT. The entire property to be transferred to Grantee as defined in Exhibit "A" attached to this deed shall be referred to herein as "Property." In accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, the following deed restrictions shall form part of any deed or other agreement proposed to govern the transfer of Property which consists of approximately 455 acres in the south central portion of the Load Assemble Pack (LAP) Area. The parcel numbers of this proposed transfer include L114 and all but the southernmost portion of L6.

B. DEED RESTRICTIONS. The Department of the Army has undertaken careful environmental study of the Property and concluded, to which the Grantee agrees, that the Property is limited by its environmental condition to its intended use as a landfill. In order to protect human health and the environment and further the common environmental objectives and land use plan of the Joliet Arsenal Citizens Planning Commission as subsequently adopted by the Illinois Land Conservation Act of 1995, P.L. 104-106, these deed restrictions are included to assure the use of the Property is consistent with the environmental condition of the Property.

### Land Use Restriction:

The Property has been remediated as stated in the Record of Decision (ROD) by the Grantor solely for use as a landfill. Pursuant to this deed restriction, the Property may only be developed and utilized for landfill purposes. The Grantee covenants for itself, its successors, assigns, future owners, heirs, and executors, not to develop or use the Property for residential purposes, the Property having been remediated only for use as landfill.

### Groundwater Use Restriction:

The Grantee further covenants not to use the groundwater within the glacial drift and Silurian dolomite aquifer and above the Maquoketa confining bed) for human consumption unless the Grantee meets the requirements of the Safe Drinking Water Act and applicable State law.

## C. CONDITIONS.

1. The Grantee covenants for itself, its successors, assigns, future owners, heirs, and executors, that it shall include the above land use and groundwater use restrictions in all subsequent deeds, leases, transfer or conveyance documents relating to the Property subject hereto. Notwithstanding this provision, failure to include these land use and groundwater use restrictions in subsequent conveyances does not abrogate the status of these restrictions as binding upon the parties, their representatives, agents, contractors, successors, assigns, future owners, heirs, and executors.

2. The Grantee for itself, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors covenants that it shall not undertake or allow any activity on or use of the Property that would violate the land use and groundwater use restrictions contained herein.

3. Notwithstanding any other provision of this Deed or any agreement between the Grantee and the Grantor, the Grantee, on behalf of itself, its successors, assigns, future owners, heirs, and executors, covenants and agrees that the Grantee and its successors, assigns, future owners, heirs, and executors shall be fully responsible for any investigation and/or remediation of hazardous substances, pollutants or contaminants, or petroleum or petroleum derivatives to the extent that such investigation and/or remediation results from a violation of the land use and the groundwater use restrictions set forth at "B" above.

#### **D. ENFORCEMENT.**

1. The above land use restrictions shall be to the benefit of the public in general and adjacent land, including land retained by the United States, and therefore, are enforceable by the United States Government. These restrictions are binding on the Grantee, its representatives, agents, contractors, successors and assigns, future owners, heirs and executors, and shall run with the land.

2. The Grantor and the State of Illinois shall be entitled to enforce the terms of this Deed by resort to specific performance or any other legal process. All remedies available hereunder shall be in addition to any all other remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of the Grantor, and any forbearance, delay or omission to exercise its rights under this instrument in the event of the breach of any term of this Deed shall not be deemed to be a waiver by the Grantor of such term or of any subsequent breach of the same or any other term, or of any of the rights of the Grantor under this Deed.

#### **VIII. LEAD BASED PAINT WARNING AND COVENANT**

A. The Property does not contain structures or buildings suitable for residential dwellings. The Grantee, and its representatives, agents, contractors, successors and assigns, future owners, heirs and executors, is hereby informed and does acknowledge that all buildings on the Property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Lead exposure is especially harmful to young children and pregnant women. Such Property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including learning disabilities, reduced intelligence quotient, behavioral problems and impaired memory.



B. Available information concerning known lead-based paint and/or lead-based paint hazards, the location of lead-based paint and/or lead-based paint hazards, and the condition of painted surfaces is contained in the Environmental Baseline Survey, which has been provided to the Grantee. Additionally, the Finding of Suitability to Transfer (FOST) has been provided to the Grantee. The Grantee has been provided with a copy of the federally approved pamphlet on lead poisoning prevention. The Grantee hereby acknowledges receipt of all of the information described in this paragraph.

C. A risk assessment or inspection by the Grantee, its successors and assigns, future owners, heirs and executors, for possible lead-based paint hazards is recommended prior to the transfer of the Property. The Grantee, its successors and assigns, future owners, heirs and executors, acknowledges that they have received the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards prior to execution of the transfer.

D. The Grantee, its successors and assigns, future owners, heirs and executors, shall comply with all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. The Grantee agrees to be responsible for any future remediation of lead-based paint found to be necessary on the Property.

E. The Army assumes no liability for remediation or damages for personal injury, illness, disability, or death, to the Grantee, its successors and assigns, future owners, heirs and executors, sublessees or to any other person, including members of the general public, arising from or incident to possession and/or use of any portion of the Property containing lead-based paint. The Grantee, its successors and assigns, future owners, heirs and executors, further agrees to indemnify and hold harmless the Army, its officers, agents and employees, from and against all suits, claims, demands or actions, liabilities, judgments, costs and attorneys' fees arising out of, or in any manner predicated upon, personal injury, death or property damage resulting from, related to, caused by or arising out of the possession and/or use of any portion of the Property containing lead-based paint. The obligation of the GRANTEE, its successors and assigns, future owners, heirs and executors, shall apply whenever the United States incurs costs or liabilities for actions giving rise to liability under this section.

## **IX. NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT**

A. The Grantee is hereby informed and does acknowledge that friable and non-friable asbestos or asbestos-containing materials (ACM) have been found on the Property, as described in the final base-wide EBS. The ACM on the Property does not currently pose a threat to human health or the environment. All friable asbestos that posed a risk to human health has been removed.

B. The Grantee covenants and agrees that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos; and that the Army assumes no liability for future remediation of asbestos or damages for personal

injury, illness, disability, or death, to the Grantee, its successors or assigns, future owners, heirs, and executors or to any

other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the Property, whether the Grantee, its successors or assigns, future owners, heirs, and executors have properly warned or failed to properly warn the individual(s) injured. The Grantee agrees to be responsible for any future remediation of asbestos found to be necessary on the Property.

C. Unprotected or unregulated exposures to asbestos in product manufacturing, shipyard, and building construction workplaces have been associated with asbestos-related diseases. Both the Occupational Safety and Health Administration (OSHA) and the United States Environmental Protection Agency (USEPA) regulates asbestos because of the potential hazards associated with exposure to airborne asbestos fibers.

D. The Grantee acknowledges that it has inspected the Property as to its asbestos content and condition and any hazardous or environmental conditions relating thereto. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos hazards or concerns.

E. No warranties either express or implied, are given with regard to the condition of asbestos on the Property, including, without limitation, whether the Property does or does not contain asbestos or is or is not safe for a particular purpose. The failure of the Grantee to inspect, or to be fully informed as to the condition of all or any portion of the Property offered, will not constitute grounds for any claim or demand against the United States.

## **X. PCB CONTAINING EQUIPMENT NOTIFICATION**

The Grantee is hereby informed and does acknowledge that equipment containing Polychlorinated Biphenyls (PCBs) exists on the Property to be conveyed, as listed in Section 3.4 of the FOST document. All PCB containing equipment has been properly labeled in accordance with applicable law and regulation to provide notification to future users. Any PCB contamination or spills related to such equipment has been properly remediated prior to conveyance. The PCB equipment does not currently pose a threat to human health or the environment.

Upon request, the Army agrees to furnish to the Grantee any and all records in its possession related to such PCB equipment necessary for the continued compliance by the Grantee with applicable laws and regulations related to the use and storage of PCBs and PCB containing equipment.

The Grantee covenants and agrees that its continued possession, use and management of any PCB containing equipment will be in compliance with all applicable laws relating to PCBs and PCB containing equipment, and that the Army assumes no liability for the future remediation of PCB contamination or damages for resulting injury, illness, disability, or death to the Grantee, its successors or assigns, future owners, heirs, and executors or to any other person,

including members of the general public arising from or incident to contact of any kind whatsoever with PCBs or PCB containing equipment, whether the Grantee, its successors or assigns, future owners, heirs, and executors have properly warned or failed to properly warn the individual(s) injured. The Grantee agrees to be responsible for any future remediation of PCBs or PCB containing equipment found to be necessary on the Property.

#### **XI. NOTICE OF THE POTENTIAL FOR THE PRESENCE OF UNEXPLODED ORDNANCE OR EXPLOSIVES**

Ordnance and explosive (OE) investigations indicate that OE is not likely to be located on this Property. However, because this is a former military installation with a history of OE manufacturing and assembling, there is a slight potential for OE to be present on the Property. In the event the Grantee, its successor, and assigns, future owners, heirs, and executors, should discover items or material which appear to be of an ordnance or explosive nature on the Property, the Grantee shall not attempt to remove or destroy such items, will immediately stop any excavation or other work in the area, and notify the local Police Department and the nearest Department of the Army Explosive Ordnance Detachment. The Army acknowledges its responsibility for OE/UXO and agrees to take prompt appropriate action to respond to any OE/UXO hazard upon notification of discovery.

#### **XII. CERCLA NOTIFICATION/COVENANTS.** Pursuant to Section 120(h)(3) and 120(h)(4) of CERCLA as amended, 42 U.S.C. Section 9601 *et seq.*:

A. NOTICE. The Grantor hereby notifies the Grantee of the storage, release, and disposal of hazardous substances on the Property. For the purpose of this Deed, "hazardous substances" shall have the same meaning as Section 101(14) of CERCLA. Available information regarding the storage, release, and disposal of hazardous substances and petroleum products is at Exhibits "G" and "H", respectively attached hereto and incorporated herein. More detailed information regarding the storage, release, and disposal of hazardous substances and petroleum products on the Property has been provided to the Grantee in the "Enhanced Preliminary Assessment Screening" (EPAS), Land Transfer to County of Will for Future Landfill, JOAAP, dated June 1997, the receipt of which the Grantee hereby acknowledges. The remedial action consisted of the excavation and off-site disposal of contaminated soil, and is described in more detail in the Will County FOST. Except as indicated by Exhibits "G" and "H",

respectively, no hazardous substances or petroleum products or their derivatives were known to have been released or disposed of on the Property.

**B. COVENANT.** The Grantor hereby covenants that:

1. All remedial action necessary to protect human health and the environment with respect to any such hazardous substances remaining on the Property as of the date of this conveyance has been taken; and

2. Any additional remedial action found to be necessary with regard to such hazardous substances remaining on the Property as of the date of this conveyance shall be conducted by the Grantor. The covenant in this Subsection shall not apply in any case in which the person or entity to whom the Property is transferred is a potentially responsible party under CERCLA with respect to the Property.

**C. NOTICES.** Any notice, demand, request, consent, approval, or communication that either party desires or is required to give to the other shall be in writing and shall either be served personally or sent by mail, postage prepaid, addressed as follows:

GRANTOR  
United States of America  
Department of the Army  
HQ, IOC  
Rock Island, IL 61299-6000

GRANTEE  
County of Will  
302 N. Chicago Street  
Joliet, IL 60432

US EPA Region 5  
Joliet AAP Site Manager  
Superfund Division  
77 W. Jackson Blvd.  
Chicago, IL 60604

IL EPA  
Joliet AAP Project Manager  
Bureau of Land  
1021 N. Grand Ave. E.  
Springfield, IL 62794-9276

**XIII. GRANTEE'S ACKNOWLEDGMENT OF THE ENVIRONMENTAL CONDITION OF THE REAL ESTATE CONVEYED HEREIN**

The Grantee has reviewed the technical environmental reports (including, but not limited to, the Finding of Suitability to Transfer (FOST), Joliet Army Ammunition Plant, Will County, Illinois, Will County Landfill Property, dated September 1999), for the Property, including all improvements located thereon, prepared by the Grantor, and agrees, to the best of Grantee's knowledge, that they accurately describe the environmental condition of the Property. The Grantee has inspected the Property and accepts the physical condition and current level of environmental hazards on or within the Property, including all improvements located thereon, and deems the Property to be safe for the Grantee's intended use. If, after conveyance of the Property to Grantee, there is an actual or threatened release of a hazardous substance or petroleum product on the Property, or in the event that a hazardous substance or petroleum product is discovered

on the Property after the date of the conveyance, whether or not such substance was set forth in the technical environmental reports, including the Final EBS, Grantee or its successor or assigns, future owners, heirs, and executors, shall be responsible for such release or newly discovered substance unless such release or such newly discovered substance was due to Grantor's activities, ownership, use, or occupation of the Property. This paragraph shall not affect the Grantor's responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules and regulations.

### **XIII. NON-DISCRIMINATION PROVISION**

The Grantee shall not discriminate upon the basis of race, color, religion, sex, age, disability, or national origin in the use, occupancy, sale, or lease of the Property conveyed herein, or any part thereof, or in their employment practices conducted thereon in violation of the provisions of Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. § 2000d); the Age Discrimination Act of 1975 (42 U.S.C. § 6102); and the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794). The Grantor shall be deemed a beneficiary of this assurance without regard to whether it remains the owner of any real estate or interest therein in the locality of the Property hereby conveyed and shall have the sole right to enforce this covenant in any court of competent jurisdiction. This assurance shall not apply, however, to the lease or rental of a room or rooms within a family dwelling unit; nor shall it apply with respect to religion to premises used primarily for religious purposes. A violation or breach of this non-discrimination provision by Grantee, its representatives, agents, contractors, successors, assigns, future owners, heirs, and executors shall not result in a forfeiture or reversion of title.

### **XIV. ANTI-DEFICIENCY ACT STATEMENT**

The Army's obligation to pay or reimburse any money under this Quit Claim Deed Of Conveyance is subject to the availability of appropriated funds to the Department of the Army, and nothing in this Quit Claim Deed Of Conveyance shall be interpreted to require obligations or payments by the United States in violation of the Anti-Deficiency Act.

**POSSESSION** is to be given upon the delivery and acceptance of this Quit Claim Deed Of Conveyance.

**IN TESTIMONY WHEREOF**, the GRANTOR has caused this Deed to be executed in its name by the Deputy Assistant Secretary of the Army (I&H) and the Seal of the Department of the Army to be hereunto affixed this 22nd day of March, 2002.

UNITED STATES OF AMERICA

BY: Joseph W. Whitaker  
JOSEPH W. WHITAKER  
Acting Deputy Assistant Secretary of the Army (I&H)

Signed, sealed and delivered in the presence of:

Witness Betty B. M. M. M. M.

Witness: David H. M. M. M.

COMMONWEALTH OF VIRGINIA )  
 )SS  
COUNTY OF ARLINGTON )

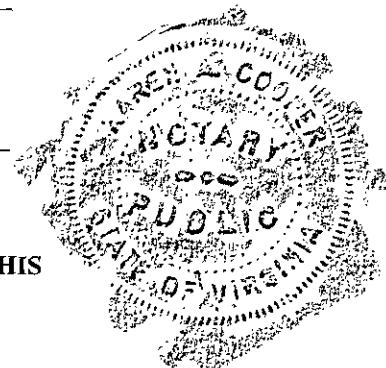
I, the undersigned, a Notary Public in and for the Commonwealth of Virginia, County of Arlington, whose commission as such expires on the 30th day of November, 2002, do hereby certify that this day personally appeared before me in the Commonwealth of Virginia, County of Arlington, Joseph W. Whitaker, Acting Deputy Assistant Secretary of the Army (I&H), whose name is signed to the foregoing instrument and acknowledged the foregoing instrument to be his free act and deed, dated this 22nd day of March, 2002, and acknowledged the same for and on behalf of the UNITED STATES OF AMERICA.

My commission expires 30 November 2002  
(PRINT EXPIRATION DATE)

Karen A. Cooper  
(NOTARY PUBLIC SIGNATURE)  
Notary Public, State of Virginia

Karen A. Cooper  
(PRINT COMMISSIONED OFFICIAL  
NAME OF THE NOTARY PUBLIC)

(IMPRESS OR STAMP YOUR OFFICIAL NOTARY PUBLIC SEAL OF OFFICE ON THIS CERTIFICATE OF ACKNOWLEDGEMENT.)

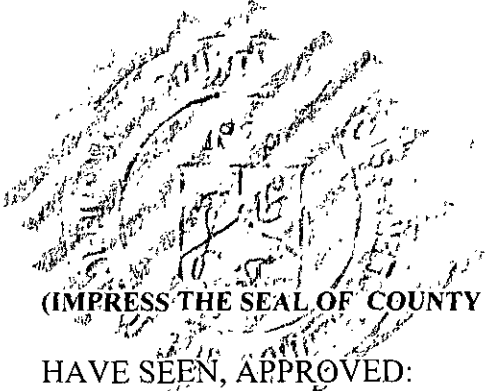


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MARY ANN STUKEL  
WILL COUNTY RECORDER  
58 E. CLINTON STREET  
JOLIET, IL 60432

**ACCEPTANCE:** On this 21st day of December, 2001, County of Will, as Grantee, acting by and through the County of Will, does hereby accept and approve this Quit Claim Deed Of Conveyance and does hereby agree to all of the terms and conditions set forth therein.

**IN TESTIMONY WHEREOF,** witness the signature of the Grantee, County of Will, as Grantee, this 21st day of December, 2001.



COUNTY OF WILL, ILLINOIS

BY: Joseph L. Mikan  
Joseph L. Mikan, Will County Executive

ATTEST: Jan Gould  
Jan Gould, Will County Clerk

(IMPRESS THE SEAL OF COUNTY OF WILL, ILLINOIS.)

HAVE SEEN, APPROVED:

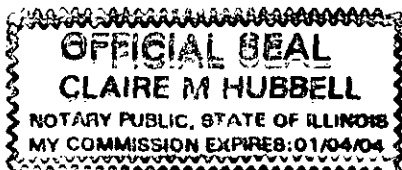
COUNTY OF WILL, ILLINOIS

BY: Joseph L. Mikan  
Joseph L. Mikan, Will County Executive  
County of Will  
302 N. Chicago Street  
Joliet, Illinois 60432

STATE OF ILLINOIS     )  
                                  )SS  
COUNTY OF WILL     )

The foregoing Quit Claim Deed Of Conveyance was acknowledged before me this 21<sup>st</sup> day of December, 2001, by Joseph L. Mikan on behalf of County of Will, Illinois.

My commission expires 01-04-04  
(PRINT EXPIRATION DATE)



Claire M. Hubbell  
(NOTARY PUBLIC SIGNATURE)

Notary Public, State of Illinois

CLAIRE M. HUBBELL  
(PRINT COMMISSIONED OFFICIAL  
NAME OF THE NOTARY PUBLIC)

(IMPRESS YOUR OFFICIAL NOTARY PUBLIC SEAL OF OFFICE ON THIS CERTIFICATE OF ACKNOWLEDGEMENT.)



This real estate transaction is not subject to the statutory requirements as set forth in 10 U.S. C. § 2662, and acts supplementary thereto and amendatory thereof.

Tax Bill To:

Return this Quit Claim Deed of Conveyance to the County of Will, 302 N. Chicago Street, Joliet, Illinois 60432.

Legal Description:

SEE EXHIBIT A

- Part of 18-08-100-001
- Part of 18-09-100-001
- Part of 18-16-100-005
- Part of 18-17-100-005

SEE EXHIBIT B

Easement:

- Part of 18-16-300-002

SEE EXHIBIT C

- Part of 18-18-100-001

Property Address: Arsenal RD, Wilmington, IL

Exempt under provisions of Paragraph B  
 Section 31-45, Property Tax Code.  
4.12.07 [Signature]  
 Date Buyer, Seller, or Representative

## EXHIBIT A

PART OF TRACT NOS. 333,  
336, 376, 377, 379 AND 380  
JOLIET ARMY AMMUNITION PLANT  
MILITARY RESERVATION

WILL COUNTY LANDFILL  
TRANSFER LAND AREA  
WILL COUNTY, ILLINOIS

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TRANSFER LAND DESCRIPTION

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Situate in the State of Illinois, County of Will, Township of Florence, Township 33 North, Range 10 East of the Third Principal Meridian, lying in part of Section 8, 9, 16 and 17, and more particularly described with bearings being referenced to the Illinois Plane Coordinate System (NAD 83), East Zone, as follows:

Commencing at the southwest corner of said Section 17, being marked by a 4-inch iron monument, said point being south of the center of Quigley Road; thence with the west line of said Section 17

North 01 degree 31 minutes 23 seconds West 1,292.35 feet to the Point of Beginning of the herein described transfer lands, being marked by an iron pipe; thence continuing with said west line

North 01 degree 31 minutes 23 seconds West 3,376.07 feet to an iron pipe; thence leaving said west line

North 61 degrees 24 minutes 41 seconds East 3,278.44 feet to an iron rod; thence

North 33 degrees 18 minutes 55 seconds East 1,138.14 feet to an iron rod; thence

~~South 60 degrees 36 minutes 09 seconds East 3,070.83 feet to~~  
an iron pipe; thence

South 01 degree 30 minutes 25 seconds East 1,694.43 feet to an iron pipe; thence

South 89 degrees 02 minutes 03 seconds West 918.61 feet to an iron rod; thence

South 01 degree 30 minutes 35 seconds East 1,139.58 feet to an iron rod; thence

South 87 degrees 45 minutes 15 seconds West 40.03 feet to a Parker-Kalon masonry nail; thence

PART OF TRACT NOS. 333,  
336, 376, 377, 379 AND 380  
JOLIET ARMY AMMUNITION PLANT  
MILITARY RESERVATION

WILL COUNTY LANDFILL  
TRANSFER LAND AREA  
WILL COUNTY, ILLINOIS

TRANSFER LAND DESCRIPTION (cont'd)

South 87 degrees 49 minutes 59 seconds West 2,780.33 feet to  
an iron rod; thence

South 02 degrees 06 minutes 22 seconds East 87.85 feet to  
an iron rod; thence

South 87 degrees 49 minutes 03 seconds West 1,730.80 feet to  
an iron pipe; thence

South 28 degrees 44 minutes 04 seconds West (passing an iron  
pipe at 1,259.58 feet) 1,458.04 feet, more or less, to the Point  
of Beginning, containing 455.00 acres, more or less.

1 Oct 1999, B.L.B.

**MARY ANN STUKEL**  
**WILL COUNTY RECORDER**  
**AFFIDAVIT OF METES AND BOUNDS**

STATE OF ILLINOIS     )  
COUNTY OF WILL        )SS

Bruce N. Friefeld, being duly sworn on oath, states that affiant resides at 10930 Jomar Court, Mokena, IL 60448. That the attached deed is not in violation of Section 1 of the Plat Act [765 ILCS 205/1] for one of the following reasons:

1. The division or subdivision of land into parcels or tracts of 5.0 acres or more in size which does not involve any new streets or easements of access.
2. The division of lots or blocks of less than one (1) acre in any recorded subdivision which does not involve any new streets or easements of access.
3. The sale or exchange of parcels of land between owners of adjoining and contiguous land.
4. The conveyance of parcels of land or interests therein for use as right of way for railroads or other public utility facilities and other pipe lines which does not involve any new streets or easements of access.
5. The conveyance of land owned by a railroad or other public utility which does not involve any new streets or easements of access.
6. The conveyance of land for highway or other public purposes or grants or conveyances relating to the dedication of land for public use or instruments relating to the vacation of land impressed with a public use.
7. Conveyances made to correct descriptions in prior conveyances.
8. The sale or exchange of parcels or tracts of land following the division into no more than two (2) parts of a particular parcel or tract of land existing on July 17, 1959 and not involving any new streets or easements of access.
9. The sale of a single lot of less than 5.0 acres from a larger tract when a survey is made by an Illinois Registered Land Surveyor; provided, that this exemption shall not apply to the sale of any subsequent lots from the same larger tract of land, as determined by the dimensions and configuration of the larger tract on October 1, 1973, and provided also that this exemption does not invalidate any local requirements applicable to the subdivision of land.
10. This conveyance is of land described in the same manner as title was taken by grantor(s).

**CIRCLE NUMBER ABOVE WHICH IS APPLICABLE TO ATTACHED DEED**

AFFIANT further states that affiant makes this affidavit for the purpose of inducing the Recorder of Deeds of Will County, Illinois, to accept the attached deed for recording.

SUBSCRIBED AND SWORN TO BEFORE ME

This 11th day of April, 2002.

Karen D Burke  
Notary Public

Bruce N. Friefeld  
AFFIANT



## EXHIBIT B

PART OF TRACT NO. 379  
JOLIET ARMY AMMUNITION PLANT  
MILITARY RESERVATION

WILL COUNTY LANDFILL  
TEMPORARY EASEMENT  
WILL COUNTY, ILLINOIS

ROADWAY, WATER, ELECTRIC, GAS, AND TELEPHONE EASEMENT

Situate in the State of Illinois, County of Will, Township of Florence, Township 33 North, Range 10 East of the Third Principal Meridian, lying in the southwest quarter of Section 17; and more particularly described with bearings being referenced to the Illinois Plane Coordinate System (NAD 83), East Zone, as follows:

Beginning at a point at the Southwest corner of Section 17, being marked by a 4-inch iron monument, said point being south of the center of Quigley Road; thence with the west line of said Section 17

North 01 degree 31 minutes 23 seconds West 1,292.35 feet to an iron pipe; thence

North 28 degrees 44 minutes 04 seconds East 198.46 feet to an iron pipe; thence parallel with the west line of Section 17

South 01 degree 31 minutes 23 seconds East 1,463.40 feet to a Parker-Kalon masonry nail at the south line of said Section 17, being in Quigley Road; thence with said south line

South 88 degrees 15 minutes 52 seconds West 100.00 feet, more or less, to the point of beginning, containing 3.16 acres, more or less.

-----1 Oct 1999, B.L.B.-----

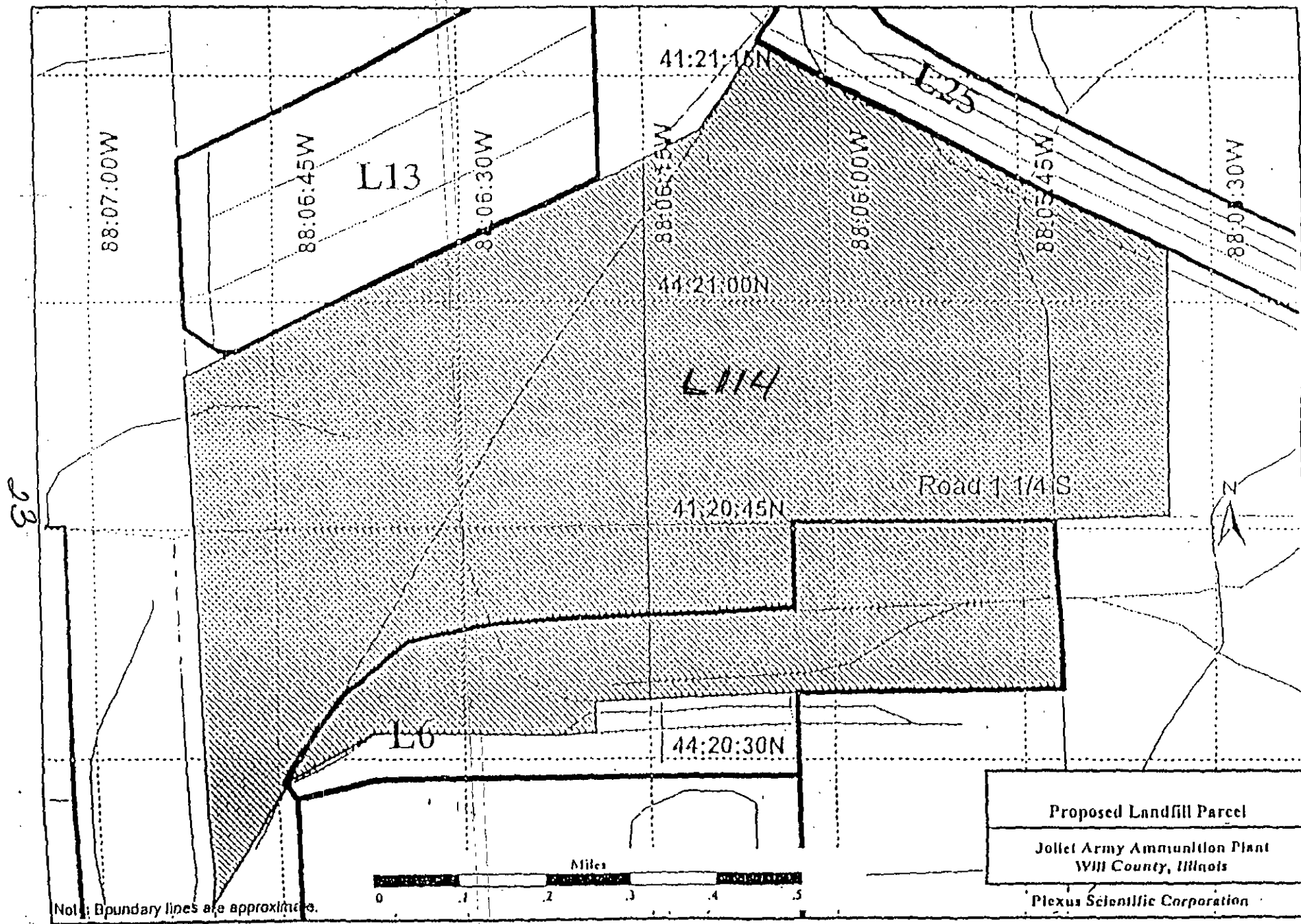
**EXHIBIT C**  
**PERMANENT INGRESS AND EGRESS EASEMENT**  
**WILL COUNTY LANDFILL PARCEL**

THAT PART OF SECTION 18, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 18, A DISTANCE OF 3650.50 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID SOUTH LINE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST 80.00 FEET; THENCE NORTH 1 DEGREE 46 MINUTES 57 SECONDS WEST 4097.02 FEET; THENCE NORTH 88 DEGREE 21 MINUTES 16 SECONDS EAST 2873.94 FEET; THENCE SOUTH 79 DEGREES 11 MINUTES 35 SECONDS EAST 436.82 FEET; THENCE SOUTH 85 DEGREES 00 MINUTES 54 SECONDS EAST 185.05 FEET; THENCE NORTH 88 DEGREES 28 MINUTES 27 SECONDS EAST 264.28 FEET TO THE EAST LINE OF AFORESAID SECTION 18; THENCE SOUTH 1 DEGREE 31 MINUTES 23 SECONDS EAST ALONG SAID EAST LINE 80.00 FEET; THENCE SOUTH 88 DEGREES 28 MINUTES 27 SECONDS WEST 268.82 FEET; THENCE NORTH 85 DEGREES 00 MINUTES 54 SECONDS WEST 193.67 FEET; THENCE NORTH 79 DEGREES 11 MINUTES 35 SECONDS WEST 432.16 FEET; THENCE SOUTH 88 DEGREES 21 MINUTES 16 SECONDS WEST 2485.02 FEET; THENCE SOUTH 43 DEGREES 17 MINUTES 10 SECONDS WEST 423.76 FEET; THENCE SOUTH 1 DEGREE 46 MINUTES 57 SECONDS EAST 3716.27 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS

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## Description of Property

Section	Building	Description	ECP Category
L6		Group 70	
	22-1	South Substation	3
	22-2	South Substation	1
	22-3	Control Building	1
	70-10	Laundry	4
	70-13	Locomotive Storage & Repair Shop	4
	70-16	Motor Pool and Gas Station	2
	70-34	Heavy Equipment Storage Shed	1
	70-37	Paint Storage Shed	1
	70-40	Oxygen Cylinder Storage	1
	70-41	Acetylene Cylinder Storage	1
	70-42	Chlorine Cylinder Storage	1
	70-44	Carpenter Shop	3
	70-45	Warehouse	4
	70-46	Machine Shop	4
	70-47	Automotive Shop	4
	70-49	Storage Shed	1
	70-59	Laundry	1
	70-60	Storage Structure	1
L114		PAS Survey Section L114 - Landfill Area	
	62-26C	Change House (South)	1
	67-1	Tank, Elevated	1
	67-1A	Radio Transmitter Building	1



R2002063838

EXHIBIT E





## Notification of Hazardous Substance Storage, Release, and Disposal\*

Building	Name of Hazardous Substance(s)	Date of Storage, Release, and Disposal
70-2	Stoddard Solvent	Used, 1954
70-10	TNT	Released, 1957 Removal Action, Oct. 1998
70-13	Carbon Tetrachloride	Used, 1949, 1954
	Paint Mist	Used, 1955, 1957
	Thinner Vapor	Used, 1955, 1957
	Chlorinated Hydrocarbon	Used, 1955, 1957
	Stoddard Solvent	Used, 1955-63
	Methylene Chloride	Used, 1957
	Perchloroethylene	Used, 1957
	Petroleum Hydrocarbons	Used, 1957
	Petroleum	Used, 1961
	Methyl Chloroform	Used, 1963
70-44	Paint Mist	Used, 1957, 1963
	Thinner Vapor	Used, 1957, 1963
	Metal Dusts	Released, 1963 Dissipated
70-45	Paint Mist	Used, 1955
	Thinner Vapor	Used, 1955
	Stoddard Solvent	Used, 1963
	Acetone	Stored, Used, 1986-93
	LIX	Stored, Used, 1986-93
	Acetylene	Stored, 1996
	Hydraulic Oil	Stored, 1996
	Oils/greases	Used, 1963
70-46	Ammonia	Used, 1955
	Trichloroethylene	Used, 1955
	Stoddard Solvent	Used, 1955-63
	Cutting Oils	Used, 1955-63
	Coolants	Used, 1955, 1957
	Paint Mists	Used, 1961
	Thinner Vapors	Used, 1961
	DDT	Used 1957-63
	Chlordane	Used, 1957-63
	Warfarin Dust	Used, 1957-63
	Malathion	Used, 1961, 1963
	Lindane	Used, 1961, 1963
	Metal Dusts	Released, 1963 Dissipated
	Acetone	Stored, Used, Unknown
	LIX	Stored, Used, Unknown

70-47	Paint Mists	Used, 1955-63
	Thinner Vapors	Used, 1955-63
	Sulfuric Acid	Used, 1955-63
	Ammonium Hydroxide	Used, 1955-63
	Stoddard Solvent	Used, 1955-63
	Petroleum Hydrocarbon	Used, 1957
	Chlorinated Hydrocarbon	Used, 1957-61
	Carbon Tetrachloride	Used, 1957-63
	Leaded Gasoline	Used, 1957
	Lead	Used, 1957-63
	Petroleum	Used, 1961
	Ether	Used, 1961
	Oils/greases	Used, 1957, 1963
	Cresylic Acid	Used, 1957, 1961-63

\* The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Liability, and Compensation Act (CERCLA or 'Superfund') 42 U.S.C. section 9620(h). This table provides information on the storage of hazardous substances for one year or more in quantities greater than or equal to 1000 kilograms or the hazardous substance's CERCLA reportable quantity (which ever is greater). In addition, it provides information on the known release of hazardous substances in quantities greater than or equal to the substances CERCLA reportable quantity. See 40 CFR Part 373.

## Notification of Petroleum Products Storage, Release, and Disposal\*

Building	Name of Petroleum Product	Size and Type of Storage	Date of Storage, Release or Disposal
70-13	Waste	6,000 gal UST	Used, ?-1994
	oil	1,500 gal UST	Used, ?-1994
70-16	Gasoline	1,500 gal UST	Used, 1966-1994
70-51 to 58	Fuel Oil	4 - 20,000 gal AST	Used, 1941-1991
		4 - 20,000 gal UST	Used, 1941-1991
Parking lot on east side of Group 70	Gasoline	20,000 gal AST	Used, 1966-1994

\*AMC's unofficial policy for notification includes amounts of petroleum in excess of 55 gallons either stored for greater than one year or released

of Agriculture may decline immediate transfer of the parcel and enter into a memorandum of understanding with the Secretary of the Army providing for the performance by the Secretary of the Army of the required actions identified in the Army assessment with respect to the parcel. The memorandum of understanding shall be entered into within 90 days, or such later date as the Secretaries may establish, after the date on which the Secretary of Agriculture declines immediate transfer of the parcel and shall include a schedule for the completion of the required actions as soon as practicable.

(2) **EVENTUAL TRANSFER.**—The Secretary of Agriculture may accept or decline at any time for any reason the transfer of a parcel covered by this section. However, if the Secretary of Agriculture and the Secretary of the Army enter into a memorandum of understanding under paragraph (1) providing for transfer of the parcel, the Secretary of Agriculture shall accept transfer of the parcel as soon as possible after the date on which all required further actions identified in the assessment have been taken and the requirements of the memorandum of understanding have been satisfied.

(e) **RULE OF CONSTRUCTION REGARDING CONCURRENCES.**—For the purpose of the reaching the concurrence required by subsection (b)(1), if a response action requires construction and installation of an approved remedial design, the response action shall be considered to have been taken when the construction and installation of the approved remedial design is completed and the remedy is demonstrated to the satisfaction of the Administrator to be operating properly and successfully.

(f) **INCLUSIONS AND EXCEPTIONS.**—

(1) **INCLUSIONS.**—The parcels of Arsenal property described in subsection (a) shall include all associated inventoried buildings and structures as identified in the Joliet Army Ammunition Plant Plantwide Building and Structures Report and the contaminate study sites for both the manufacturing and load assembly and packing sites of the Arsenal as shown in the Dames and Moore Final Report, Phase 2 Remedial Investigation Manufacturing (MFG) Area Joliet Army Ammunition Plant, Joliet, Illinois (May 30, 1993, Contract No. DAAA15-90-D-0015 task order No. 6 prepared for the United States Army Environmental Center).

(2) **EXCEPTION.**—The parcels described in subsection (a) shall not include the property at the Arsenal designated for transfer or conveyance under subtitle B.

## Subtitle B—Other Land Conveyances Involving Joliet Army Ammunition Plant

### SEC. 2921. CONVEYANCE OF CERTAIN REAL PROPERTY AT ARSENAL FOR A NATIONAL CEMETERY.

(a) **CONVEYANCE AUTHORIZED.**—Subject to section 2931, the Secretary of the Army may transfer, without reimbursement, to the Secretary of Veterans Affairs the parcel of real property at the Arsenal described in subsection (b) for use as a national cemetery operated as part of the National Cemetery System of the Department of Veterans Affairs under chapter 24 of title 38, United States Code.

(b) **DESCRIPTION OF PROPERTY.**—The real property authorized to be transferred under subsection (a) is a parcel of real property at the Arsenal consisting of approximately 982 acres, the approximate legal description of which includes part of sections 30 and 31, Jackson Township, Township 34 North, Range 10 East, and part of sections 25 and 26, Channahon Township, Township 34 North, Range 10 East, Will County, Illinois, as depicted in the Arsenal land use concept.

(c) **SECURITY MEASURES.**—The Secretary of Veterans Affairs shall provide and maintain physical and other security measures on the real property transferred under subsection (a). Such security measures (which may include fences and natural barriers) shall include measures to prevent members of the public from gaining unauthorized access to the portion of the Arsenal that is under the administrative jurisdiction of the Secretary of Veterans Affairs and that may endanger health or safety.

(d) **SURVEYS.**—All costs of necessary surveys for the transfer of jurisdiction of Arsenal properties from the Secretary of the Army to the Secretary of Veterans Affairs shall be borne solely by the Secretary of Veterans Affairs.

### SEC. 2922. CONVEYANCE OF CERTAIN REAL PROPERTY AT ARSENAL FOR A COUNTY LANDFILL.

(a) **CONVEYANCE AUTHORIZED.**—Subject to section 2931, the Secretary of the Army may convey, without compensation, to Will County, Illinois, all right, title, and interest of the United States in and to the parcel of real property at the Arsenal described in subsection (b), which shall be operated as a landfill by the County.

(b) **DESCRIPTION OF PROPERTY.**—The real property authorized to be conveyed under subsection (a) is a parcel of real property at the Arsenal consisting of approximately 455 acres, the approximate legal description of which includes part of sections 8, 9, 16, and 17, Florence Township, Township 33 North, Range 10 East, Will County, Illinois, as depicted in the Arsenal land use concept.

(c) **CONDITION ON CONVEYANCE.**—The conveyance shall be subject to the condition that the Department of the Army, the Department of Veterans Affairs, and the Department of Agriculture (or their agents or assigns) may use the landfill established on the real property conveyed under subsection (a) for the disposal of construction debris, refuse, and other materials related to any restoration and cleanup of Arsenal property. Such use shall be subject to applicable environmental laws and at no cost to the Federal Government.

(d) **REVERSIONARY INTEREST.**—If, at the end of the five-year period beginning on the date of the conveyance under subsection (a), the Secretary of Agriculture determines that the conveyed property is not opened for operation as a landfill, then, at the option of the Secretary of Agriculture, all right, title, and interest in and to the property, including improvements thereon, shall revert to the United States. Upon any such reversion, the property shall be included in the Midewin National Tallgrass Prairie. In the event the United States exercises its option to cause the property to revert, the United States shall have the right of immediate entry onto the property.

(e) INFORMATION REGARDING ENVIRONMENTAL CONDITIONS.—

At the request of the Secretary of Agriculture, Will County, the Secretary of the Army, and the Administrator shall provide to the Secretary of Agriculture all information in their possession at the time of the request regarding the environmental condition of the real property to be conveyed under this section. The liability and responsibility of any person under any environmental law shall remain unchanged with respect to the landfill, except as provided in this title, including section 2913.

(f) SURVEYS.—All costs of necessary surveys for the conveyance of real property under this section shall be borne by Will County, Illinois.

(g) ADDITIONAL TERMS AND CONDITIONS.—The Secretary of the Army may require such additional terms and conditions in connection with the conveyance under this section as the Secretary of the Army considers appropriate to protect the interests of the United States.

SEC. 2023. CONVEYANCE OF CERTAIN REAL PROPERTY AT ARSENAL FOR INDUSTRIAL PARKS.

(a) CONVEYANCE AUTHORIZED.—Subject to section 2931, the Secretary of the Army may convey to the State of Illinois, all right, title, and interest of the United States in and to the parcels of real property at the Arsenal described in subsection (b), which shall be used as industrial parks to replace all or a part of the economic activity lost at the Arsenal.

(b) DESCRIPTION OF PROPERTY.—The real property at the Arsenal authorized to be transferred under subsection (a) consists of the following parcels:

(1) A parcel of approximately 1,900 acres, the approximate legal description of which includes part of section 30, Jackson Township, Township 34 North, Range 10 East, and sections or parts of sections 24, 25, 26, 35, and 36, Township 34 North, Range 9 East, in Channahon Township, an area of 9.77 acres around the Des Plaines River Pump Station located in the southeast quarter of section 15, Township 34 North, Range 9 East of the Third Principal Meridian, in Channahon Township, and an area of 511 feet by 596 feet around the Kankakee River Pump Station in the Northwest Quarter of section 5, Township 33 North, Range 9 East, east of the Third Principal Meridian in Wilmington Township, containing 6.99 acres, located along the easterly side of the Kankakee Cut-Off in Will County, Illinois, as depicted in the Arsenal land use concept, and the connecting piping to the northern industrial site, as described by the United States Army Report of Availability, dated 13 December 1993.

(2) A parcel of approximately 1,100 acres, the approximate legal description of which includes part of sections 16, 17, and 18 in Florence Township, Township 33 North, Range 10 East, Will County, Illinois, as depicted in the Arsenal land use concept.

(c) CONSIDERATION.—

(1) DELAY IN PAYMENT OF CONSIDERATION.—After the end of the 20-year period beginning on the date on which the conveyance under subsection (a) is completed, the State of Illinois shall pay to the United States an amount equal to

fair market value of the conveyed property as of the time of the conveyance.

(2) EFFECT OF RECONVEYANCE BY STATE.—If the State of Illinois reconveys all or any part of the conveyed property during such 20-year period, the State shall pay to the United States an amount equal to the fair market value of the reconveyed property as of the time of the reconveyance, excluding the value of any improvements made to the property by the State.

(3) DETERMINATION OF FAIR MARKET VALUE.—The Secretary of the Army shall determine fair market value in accordance with Federal appraisal standards and procedures.

(4) TREATMENT OF LEASES.—The Secretary of the Army may treat a lease of the property within such 20-year period as a reconveyance if the Secretary determines that the lease is being used to avoid application of paragraph (2).

(5) DEPOSIT OF PROCEEDS.—The Secretary of the Army shall deposit any proceeds received under this subsection in the special account established pursuant to section 204(h)(2) of the Federal Property and Administrative Services Act of 1949 (40 U.S.C. 485(h)(2)).

(d) CONDITIONS OF CONVEYANCE.—

(1) REDEVELOPMENT AUTHORITY.—The conveyance under subsection (a) shall be subject to the condition that the Governor of the State of Illinois, in consultation with the Mayor of the Village of Elwood, Illinois, and the Mayor of the City of Wilmington, Illinois, establish a redevelopment authority to be responsible for overseeing the development of the industrial parks on the conveyed property.

(2) TIME FOR ESTABLISHMENT.—To satisfy the condition specified in paragraph (1), the redevelopment authority shall be established within one year after the date of the enactment of this title.

(e) SURVEYS.—All costs of necessary surveys for the conveyance of real property under this section shall be borne by the State of Illinois.

(f) ADDITIONAL TERMS AND CONDITIONS.—The Secretary of the Army may require such additional terms and conditions in connection with the conveyance under this section as the Secretary considers appropriate to protect the interests of the United States.

Subtitle C—Miscellaneous Provisions

SEC. 2031. DEGREE OF ENVIRONMENTAL CLEANUP.

(a) IN GENERAL.—Nothing in this title shall be construed to restrict or lessen the degree of cleanup at the Arsenal required to be carried out under provisions of any environmental law.

(b) RESPONSE ACTION.—The establishment of the Midewin National Tallgrass Prairie under subtitle A and the additional real property transfers or conveyances authorized under subtitle B shall not restrict or lessen in any way any response action or degree of cleanup under CERCLA or other environmental law, or any action required under any environmental law to remediate petroleum products or their derivatives (including motor oil and aviation fuel), required to be carried out under the authority of the Secretary of the Army at the Arsenal and surrounding areas.



DEPARTMENT OF THE ARMY  
HEADQUARTERS, U.S. ARMY INDUSTRIAL OPERATIONS COMMAND  
ROCK ISLAND, ILLINOIS 61299-6000



REPLY TO  
ATTENTION OF

AMSIO-ISR (405-90a)

04 OCT 1996

MEMORANDUM FOR Commander, U.S. Army Materiel Command, ATTN:  
AMCEN-R, 5001 Eisenhower Avenue,  
Alexandria, VA 22333-0001

SUBJECT: Report of Excess - Joliet Army Ammunition Plant

1. The attached Report of Excess (ROE) is provided for the legislated disposal action at Joliet Army Ammunition Plant (JOAAP). The ROE is for the entire installation but the immediate action is for approximately 15,000 acres to be transferred to the Department of Agriculture by 6 Nov 96.
2. The legislation, P.L. 104-106, Title XXIX, section 2901-2932 indicates the total installation is to be transferred to four entities. The 982 acre parcel for the Veterans Affairs was transferred in July 1996. The next parcel is to be transferred to the Department of Agriculture consisting of approximately 19,100 acres. Approximately 4,100 acres of this total are environmentally contaminated or have explosives that may need to be cleaned up and the explosive Quantity Distance barriers deleted. This cannot be accomplished prior to the Nov 96 transfer date specified in the law. The other two parcels to be transferred will be to Will County for a landfill estimated in 1998 and the industrial parks (2 each) estimated for 2003 or later.
3. Recommend that the ROE be approved for disposal and forwarded to the Louisville District Corps of Engineers for execution. This total installation is excess to the mission needs of the Industrial Operations Command.
4. Attached to this ROE as supporting documents for the approximately 15,000 acres to be transferred are the site plans, revised environmental contamination plan, State Historic Preservation Office concurrence, Fish and Wildlife concurrence and the Record of Environmental Consideration. Additionally, the Preliminary Assessment Screening and Statement of Condition are provided. The revised environmental plan outlines the properties that cannot be transferred due to contamination, explosive buildings currently not certified for transfer, and explosive quantity distance arcs which are still in use. A Memorandum of

AMSIO-ISR

SUBJECT: Report of Excess - Joliet Army Ammunition Plant

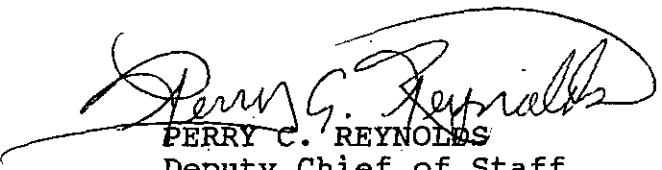
Understanding (MOU) will be developed and signed as specified in section 2912 (a)(2) to designate the properties that currently cannot be transferred to the Department of Agriculture. Sections 2912 (b) and 2916 of the law specify other contaminated properties contained within the 4,100 acres which cannot be transferred at this time.

5. The Forest Service has been empowered to act for the Department of Agriculture in this action. The Forest Service is represented by the Regional Forester, Region 9, and has been empowered to sign the MOU for properties not transferred noted in section 2912 (a)(2) of the law. Also they received the environmental documents and assessments required to be provided by the U. S. Army under section 2912 (c) of the law. The environmental documents were provided on 6 Sep 96 in cooperation with the Army Environmental Center. The delegation to the Forest Service is noted in their letter of 19 Aug 96 to the Industrial Operations Command. Headquarters, AMC has been requested on 22 Aug 96 to delegate the signature authority to the Commander, Industrial Operations Command for the MOU.

6. The ROE is formatted as noted in the current AR 405-90. The supporting environmental documents are formatted as specified in the current AR 200-1 and 2.

7. The POC is Mr. Edgar C. Agy. AMSIO-ISR, DSN 793-1895, E-mail eagy@ria-emh2.army.mil.

FOR THE COMMANDER:

Encl  
as

PERRY C. REYNOLDS  
Deputy Chief of Staff  
for Installation Support

CF:

Commander, U.S. Army Engineer District, Louisville Corps of Engineers, ATTN: Real Estate Division, Military Branch, P.O. Box 59, Louisville, KY 40201-0059 (w/encl)  
Commander, U. S. Army Environmental Center, ATTN: SFIM-AEC-IRA/Ms. Janet Beavers, Aberdeen Proving Ground, MD 21010-5401 (wo/encl)



## REPORT RECOMMENDING PROPERTY TO BE EXCESSED

INSTALLATION NAME: Joliet Army Ammunition Plant  
DATE: 13 August 1996

1. GENERAL DESCRIPTION INCLUDING, LOCATION, AREA,  
DESCRIPTION OF COMMUNITY IMPACT, ALL ENVIRONMENTAL  
DOCUMENTATION REQUIRED IN AR 200-1 AND 200-2.

Joliet Army Ammunition Plant(JAAP) is composed of two separate land masses denoted as Joliet AAP-Elwood and Joliet AAP-Kankakee. The area of JAAP-Elwood has a total of 14,385 acres and is also called the Load, Assembly, Pack (LAP) area. Joliet AAP-Kankakee has a total of 9158 acres and is also called the Manufacturing Area. The total installation acreage is 23,543. The installation is located in the state of Illinois and the County of Will. County highway 53 runs between the two areas and is the physical boundary between the two. The installation is generally located to the southeast of the intersection of Interstate 80 and 55 in the middle of the state.

Joliet AAP is a National Priority Listed site from the environmental aspect and its cleanup is guided by a Federal Facilities Agreement signed between the Federal Environmental Protection Agency(EPA), the State EPA and the Army Environmental Center(AEC) representing the Army. The Industrial Operations Command(IOC), located at Rock Island Arsenal in Rock Island, IL is the Major Subordinate Command for the installation which is under the Army Materiel Command. The installation Commander is located at the IOC as the installation has only a limited staff and is inactive.

Legislation has been passed and is part of P.L. 104-106, Title XXIX, section 2901, entitled "Illinois Land Conservation Act of 1995". The legislation indicates that the land mass at JAAP is to be divided into four areas for transferring to the designed parties. The largest area of approximately 19,106 acres is designated for transfer to the Department of Agriculture (Forest Service is currently representing the DOA) on/before 6 November 1996. Approximately 4100 acres of the total to be transferred are still contaminated and will not transfer on this date until cleaned up as specified under section 2912 of the law. The second area was designated for the Veterans Affairs(VA) for a National Cemetery. These 982 acres were transferred to the VA in July 1996. This land encompassed the area known as Hoff Woods located in the Manufacturing Area, adjacent to County Route 53 in the northwest section of the land mass.

The third area to be made available is for a county landfill for the County of Will. It has approximately 455 acres and is located in the LAP side in the southeast one quarter of the land mass. The remaining area is set aside for industrial parks, one located on the LAP side (approximately 1100 acres) and the other in the Manufacturing Area (approximately 1900 acres).

A Record of Environmental Consideration (REC) will be provided with this excess report as the next major action is the transfer to the Department of Agricultural. Also included will be the State Historic Preservation Officers concurrence with this action.

2. PUBLIC DOMAIN LANDS INVOLVED? No

3. FOUR COPIES OF COLOR CODED INSTALLATION MAPS SHOWING DISPOSAL PARCEL, AND BUILDINGS AND UTILITIES. These are included as enclosure 1 to this report. According to the P.L. 104-106 the buildings on the property to include the utilities will transfer to the new owners "as is-where is". The map noted in the law showing the areas to be transferred is available at the DASA(I&H). The map is dated 22 Sep 95.

4. NATURE AND EXTENT OF KNOWN CONGRESSIONAL INVOLVEMENT.

There has been a great amount of involvement not only from the Federal legislators from this geographical area but also the Governor of Illinois and the State Representative from this area. The five towns and county that surround the installation have participated in the action. The legislators are:

- Congressman Sangmeister (retired)
- Congressman Weller (incumbent) - Senator Simon
- Senator Mosley-Braun
- State Representative Spangler

Congressman Sangmeister was the original leader of the local reuse committee that worked with the Army to define the reuse of the installation. He introduced legislation to transfer the property but was unsuccessful at the time he retired. Congressman Weller, Congressmans Sangmeister successor took over the leadership of the committee and was successful with the support of the entire Illinois delegation to pass the current law, dated February 1996.

5. CONTAMINATION CLEARANCE STATEMENT SIGNED BY THE INSTALLATION COMMANDER, ATTACHED AS AN ENCLOSURE.

The Statement of Condition for the portion of the installation transferring to the Department of Agriculture is attached as enclosure 2. This statement is signed by the Commander of AEC. Follow on transfers will have their own

Statements provided to the servicing District Engineer.

6. CARE AND CUSTODY PLAN, INCLUDING RESPONSIBLE AGENCY, LEGISLATIVE JURISDICTION, SECURITY MEASURES, FUNDING SOURCE, DATES FOR EQUIPMENT REMOVAL, VACATION OF THE PREMISES AND COST DATA.

There is no care and custody plan for any of the structures at JAAP except for the building the Administrative Contracting Officer staff is in ( Facility Number 74-3), and the structures that are occupied by Alliant Techsystems under the no cost Facilities contract. Additionally, there are ongoing leases with the Forest Service to occupy facilities until they are transferred to them(DOA) under the Public Law. The facilities utilized by Alliant Techsystems are to conduct DOD production under separate contracts. As long as the work is for DOD the facilities are provided at no cost, and they must keep them up to the standards indicated in the Facilities contract. This contract expires in September 1998 and Alliant has been placed on notice and is currently not expecting it to be renewed. The Forest Service, acting for the Department of Agriculture at JAAP has agreed to let Alliant Techsystems remain on lands to be transferred to them until the contract runs out. Alliant Techsystems also occupies lands to be transferred to Will County and the industrial parks. These do not seem to be a problem at this time.

The Legislative Jurisdiction was retroceded to concurrent on 14 July 1992.

The security measures for the properties under the control of the Army is through a contract to remove all the unused equipment (Liquidator Contract) between now and December 1998. This contractor will provide minimum security of the entire installation while he is removing equipment that is excess to the Army and some excess real property authorized via DA Form 337 action. *explained*

The vacation of the premises is for the most part already accomplished except for the Administrative Contracting Officer staff of 5 people in one building. This is the on-site Army presence. The Facilities contractor(Alliant) with 100-150 people will terminate by September 1998. The lessees will transfer to the new owners when the land is transferred based upon agreements already in place. The lessees are agriculture type and Forest Service using properties they will eventually acquire under the terms of the public law. The agriculture leases will transfer to the new property owners. *more*

7. DISPOSAL OF IMPROVEMENTS. THE FOLLOWING MUST BE CONSIDERED.

A. ~~CONDITIONS PROMPTING DISPOSAL~~- The property is excess to the mission needs of the IOC and a public law has been passed to transfer the properties to others. This action has been discussed with DA and AMC during the commenting on the draft public law.

B. TYPE OF FUNDS USED IN CONSTRUCTION- No construction funds have been expended at JAAP for the last 5 years. Prior to that any construction that was undertaken was financed with Procurement, Army, Ammunition (PAA).

C. PROPOSED METHOD OF DISPOSAL- The Louisville Corps of Engineers based upon the current public law for disposal of the installation will be the agent for this action. The disposal will be in accordance with the intent of P. L. 104-106, section 2901.

D. IS DISPOSAL IN WAY OF NEW CONSTRUCTION- No

E. ANY MISSION FOR STRUCTURES- No

F. SALVAGE VALUE OF IMPROVEMENTS- Over \$50,000 per the Louisville COE.

G. HISTORIC OR ARCHEOLOGICAL SITE INVOLVED?  
COORDINATION WITH STATE HISTORIC PRESERVATION OFFICER?

The coordination letter with the SHPO is attached as enclosure 3. This is a no further action issue.

H. FULL ENVIRONMENTAL DOCUMENTATION- The Preliminary Assessment Screening (PAS) and the Record of Environmental Consideration (REC) are enclosed(enclosure 4) to provide the documents for this action. The final Record of Decision (ROD) for the cleanup action will not be signed until 1997 or 1998. The properties transferring are not subject to the ROD.

I. ANY PLANS TO REMOVE EQUIPMENT IN PLACE?- Some equipment in place will be removed under the Liquidator contract. Those pieces of real property have been identified and approved for disposal under separate action on DA Form 337s. The remaining real property will be transferred to the entities under the public law in an "as is- where is" condition.

J. DATA ON FAMILY HOUSING- Joliet AAP has two housing areas. These are Brown Circle(14 units) in the northern end of the Manufacturing Area and White Circle(30 units) in the LAP area. These were vacated on 30 Sep.1992.

K. JUSTIFICATION TO DISPOSE OF IMPROVEMENTS  
TRANSFERRED WITHIN TWO YEARS- None

8. ~~DETAILS ON ANY RESTORATION PLANNED-~~ None

9. DATA ON ANY POST CEMETERIES INVOLVED- There are a total of 6 cemeteries at JAAP. These are divided in the following manner, JAAP- Elwood- 3, JAAP-Kankakee- 3. These cemeteries will all transfer to the new owners under the P.L. 104-106. The names of the cemeteries are Starr Grove-LAP. Chicago Road-LAP, Klinger-LAP, Reed- Mfg., Newton-Mfg. and Mckuen-Mfg..

10. DATA ON PRIVATE CEMETERIES INVOLVED- None

11. DATA ON INDUSTRIAL PROPERTIES INVOLVED- Based upon the P.L. 104-106, section 2923 there will be two industrial parks developed. These will be under a 9 member board appointed by the Governor (4 members) and the five surrounding towns to JAAP. This property will not be available until 2003 to 2004 due to environmental clean up.

12. ANY OTHER FACTORS AFFECTING DISPOSAL I.E.,- WETLANDS, RESTRICTIONS, KNOWN ENCUMBRANCES, ENDANGERED SPECIES, ETC.

Yes, there are wetlands and endangered species which have been identified through studies with the State. These items have been factored into the disposal plan that became law. There are no outstanding issues at present. 8

13. PARTIES KNOWN TO BE INTERESTED IN ACQUIRING PROPERTY- The disposition is mandated by the law.

14. NAME AND PHONE NUMBER OF POINT OF CONTACT FOR THE ACTION- Mr. Edgar C. Agy, HQ, IOC, AMSIO-ISR, DSN 793-1895, COMM 309-782-1895, E-mail eagy@ria-emh2.army.mil.

15 A. SCREENED WITH MCKINNEY HOMELESS ASSISTANCE ACT? Not required due to disposal action under public law.

B. IS THIS ACTION THE RESULT OF EXECUTIVE ORDER 12512 SURVEY OR A BASE CLOSURE CONGRESSIONAL ACTION- No

C. DISTRICT ENGINEER ESTIMATE OF FAIR MARKET VALUE, IF AVAILABLE- Not available. The public law transfers the property at no cost to the new owners.

ENCL

1. Installation maps- 4 ea- color coded
2. Statement of Condition
3. SHPO Memorandum
4. PAS and REC

R2002063838

27 AUG 1999

AMSIO-IBX-D (405-90a)

MEMORANDUM FOR Commander, U.S. Army Materiel Command,  
AMCEN-R, 5001 Eisenhower Avenue,  
Alexandria, VA 22333-0001

SUBJECT: Report of Excess - Joliet Army Ammunition Plant (JOAAP)

## 1. References:

- a. Memorandum, HQ, IOC, AMSIO-ISR, 4 Oct 1996, SAB.
- b. Memorandum, HQ, IOC, AMSIO-IBI-DISP, 20 Apr 1999, SAB.

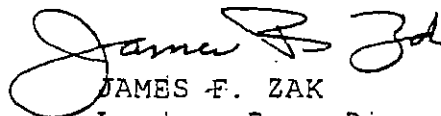
2. Reference memorandum 1a, was forwarded as the original Report of Excess (ROE). The ROE explains in detail the legislative action disposing of JOAAP. The ROE is for the entire installation but the immediate action is for approximately 455 acres to be transferred to Will County in the State of Illinois.

3. The 1996 Defense Authorization Act, P.L. 104-106, Title XXIX, titled "Land Conveyances Involving Joliet Army Ammunition Plant, Illinois", section 2901-2932, may be cited as the "Illinois Land Conservation Act of 1995", and authorizes that the total installation is to be transferred to four entities.

4. The attached Finding of Suitability to Transfer (FOST), is the final supporting documentation required to support disposal of approximately 455 acres, to be transferred to Will County. The Record of Decision (ROD) was previously provided. Above references provided all other required documentation.

5. The POC is Mr. Dean Chamberlin, this command, AMSIO-IBX-D, (309) 782-1416, or DSN 793-1416, E-mail chamberlind@ioc.army.mil.

Encls



JAMES F. ZAK  
Leader, Base Disposal Sub Team

R2002063838

CF (w/encls):

Commander,

U.S. Army Engineers District, Louisville, Corps of Engineers,

ATTN: CELRL-RE-M, P.O. Box 59,

Louisville, KY 40201-0059

SIOJO-CR (Mr. Art Holz)

AMSIO-IBX-O

AMSIO-IBE

AMSIO-GCE

AMCEN-R (AMSIO-IBX-D/27 Aug 99) (405-90) 1st End Ms. Chuck/dm/  
DSN 767-9899  
SUBJECT: Report of Excess - Joliet Army Ammunition Plant (JOAAP)

CDR, USAMC, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001  
29 SEP 1999

FOR Assistant Chief of Staff for Installation Management, ATTN:  
DAIM-MD, 600 Army Pentagon, Washington, D.C. 20310-0600

1. We request that your office submit immediately the enclosed Finding of Suitability to Transfer (FOST) for signature by the Office of the Deputy Assistant Secretary of the Army, for Installations and Environment. This FOST covers the conveyance of approximately 455 acres of land at JOAAP to Will County, Illinois. The land will be conveyed in accordance with Public Law 104-106 "Land Conveyances Involving JOAAP, Illinois". The Report of Excess (ROE) covering the entire installation was previously provided by our command, October 1996. This package contains the site specific FOST for the 455 acres for transfer to Will County.
2. We have considered Environmental and Safety issues for the 455 acres, which was documented and previously provided. The signed FOST should be forwarded to the U.S. Army Corps of Engineers for their action. Please provide this office with a copy of the signed FOST for our records.
3. Point of contact for this action is Ms. Maria Chuck, AMCEN-R, commercial (703) 617-9002 or DSN 767-9002.
4. AMC -- Your Readiness Command . . . Serving Soldiers Proudly!

FOR THE COMMANDER:



P. S. MORRIS  
Colonel, GS  
Deputy Chief of Staff  
for Engineering, Housing,  
Environment, and Installation  
Logistics

Encls  
nc

CF:

Commander, U.S. Army Industrial Operations Command, ATTN:  
AMSIO-ISR, Rock Island, IL 61299-6000



03/13/02 15:58 FAX 5023157009 USAED LOUISVILLE R2002063838  
DAIM-MD (AMSIO-IBX-D/27 Aug 99) (405-90) 2<sup>nd</sup> End  
SUBJECT: Joliet Army Ammunition Plant – Land Transfer

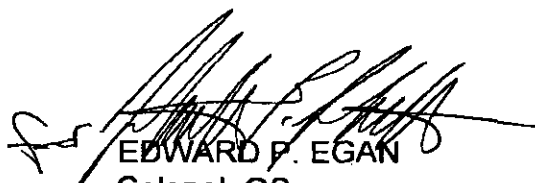
HQDA (DAIM-MD), 600 Army Pentagon, Washington, D.C. 20310-0600

OCT 20 1999

FOR Commander, HQUSACE, ATTN: CERE-MM, 20 Massachusetts  
Avenue, NW, Washington, D.C. 20314-1000

1. The 1996 Defense Authorization Act, P.L. 104-106, Section 2922, authorizes Army to convey approximately 455 acres of land at Joliet Army Ammunition Plant (JOAAP) to Will County, Illinois, for a landfill. See AMC's Point Paper at Enclosure 1 for more in-depth information on this legislation and issues of concern.
2. The Finding of Suitability to Transfer (FOST) signed by the Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) (Mr. Fatz) is at Enclosure 2. The FOST is the final supporting document required to finalize the land transfer to Will County.
3. This action has been reviewed by our office and coordinated with DAIM-ED (Mr. Vogt), OSAGC (Messrs. Bacher and Connor), ODASA (I&H) (Mr. Birney), and ODASA (ESOH) (Mr. Newsome).
4. This action is approved for processing. Ms. Susan Habit, (703) 692-9229, is the point of contact for this endorsement.

Encls



EDWARD P. EGAN

Colonel, GS

Chief, Plans and Operations Division

CF:

ODASA (I&H)/Mr. Birney  
ODASA (ESOH)/Mr. Newsome  
OSAGC/Messrs. Bacher/Connor  
DAIM-ED/Mr. Vogt  
DAIM-ZR/Mr. Knueven  
AMCEN-R/Ms. Chuck

CERE-M (AMSIO-IBX-D/27 Aug 99) (405-90) 3<sup>rd</sup> End Mr. Swiecone/202-761-1749  
SUBJECT: Report of Excess - Joliet Army Ammunition Plant (JOAAP)

HQ, U.S. ARMY CORPS OF ENGINEERS, WASH, DC 20314-1000

27 OCT 1999

CL 11/3


FOR COMMANDER, GREAT LAKES & OHIO RIVER DIVISION,  
ATTN: CELRD-ET-R

11/3  
11/3

Forwarded for appropriate action is the executed Finding of Suitability to Transfer (FOST) for the conveyance of approximately 455 acres of land to Will County, Illinois, pursuant to P.L. 104-106 at subject installation.

FOR THE COMMANDER:

Encl  
nc

  
LINDA D. GARVIN  
Deputy Chief of Staff  
for Real Estate

CF (w/o encl):

U.S. ARMY MATERIEL COMMAND, ATTN: AMCEN-R, 5001 EISENHOWER AV,  
ALEXANDRIA VA 22333-0001  
CELRL-RE

**FINDING OF SUITABILITY  
TO TRANSFER  
(FOST)**

**JOLIET ARMY AMMUNITION PLANT  
WILL COUNTY, ILLINOIS**

**WILL COUNTY LANDFILL PROPERTY**

**September 1999**

**Final**

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**FINDING OF SUITABILITY TO TRANSFER  
JOLIET ARMY AMMUNITION PLANT, IL  
Property to be Transferred to Will County, IL  
September 1999**

**1. PURPOSE:**

The purpose of this Finding of Suitability to Transfer (FOST) is to document the environmental suitability of certain parcels of property at Joliet Army Ammunition Plant (JOAAP), IL for transfer to Will County, IL for the development of a landfill, consistent with Public Law (PL) 104-106, Illinois Land Conservation Act of 1995, the Comprehensive Environmental Response and Liability Act (CERCLA), Section 120 (h), and Department of Defense policy. In addition, this FOST identifies any use restrictions as specified in the attached Environmental Protection Provisions necessary to protect human health and the environment and to prevent interference with any on-going remediation activities.

**2. PROPERTY DESCRIPTION:**

The proposed Property to be transferred consists of approximately 455 acres in the south central portion of the Load-Assemble-Pack (LAP) Area. The parcel numbers of this proposed transfer includes L114 and all but the southernmost portion of L6. The proposed transfer includes 28 buildings/structures. A listing of the buildings/structures is at Table 1. Currently, the only buildings in use are the electrical substations (Buildings 22-1, -2, and -3). A site map of the proposed property to be transferred is at enclosure 1/figure 1. Figure 2 is a "Plat of Survey for the Will County Landfill at the Joliet Arsenal" Parcel 1.

**3. ENVIRONMENTAL CONDITION OF PROPERTY:**

A determination of the environmental condition of the Property has been made based on an Enhanced Preliminary Assessment Screening (PAS) [which is an Environmental Baseline Survey (EBS)] dated June 1997, and the Final Feasibility Studies dated September 1997, and a walk through inspection that occurred on 10 July 1997. The information provided is a result of a complete search of Army files during the development of the PAS. Numerous other documents, records and archives also provided information on environmental conditions of the property and this information is contained and summarized in the PAS entitled, Enhanced Preliminary Assessment Screening/Environmental Baseline Survey, Land Transfer to Will County for Future Landfill, June 1997. A listing of these documents, records and archives can be found in Section 6 of the PAS. Note that since the time the data was gathered for the PAS/EBS, a Liquidation/Demolition action has been underway on the Property. Notably, many of the findings presented in the PAS are no longer present since the Liquidation action has removed many property items and many buildings. This action is scheduled to conclude in December 1999. This FOST takes into account the effects of the Liquidation effort.

### **3.1 Environmental Conditions of Property Categories:**

The Property that is being considered for transfer is classified as Department of Defense (DoD) Environmental Condition of Property (ECP) Categories. A summary of the ECP Categories for buildings or parcels is provided in Enclosure 2 – DoD Environmental Condition Codes. Enclosure 2 defines the ECP categories. The ECP Categories for the specific parcels are as follows:

ECP Category 1: 22-2, 22-3, 70-34, 70-37, 70-40,  
70-41, 70-42, 70-49, 70-59, 70-60, 62-26C, 67-1, 67-1A  
ECP Category 2: 70-16  
ECP Category 3: 70-44, 22-1,  
ECP Category 4: 70-2, 70-10, 70-13, 70-45, 70-46, 70-47

A summary of the ECP Categories for specific buildings or parcels is provided in Table 1 – Description of Property.

### **3.2 Storage, Release, or Disposal of Hazardous Substances:**

Hazardous substances were stored for one year or more in excess of the 40 CFR Part 373 reportable quantities throughout the Property. Hazardous substances were also released or disposed in excess of the 40 CFR Part 373 reportable quantities throughout the Property. The release or disposal of these hazardous substances was remediated at the time of the release or, where required, was subsequently remediated as part of the installation restoration program. All necessary response action has been taken at such sites. A summary of the buildings or areas in which hazardous substances were stored, released, or disposed is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal.

### **3.3 Petroleum and Petroleum Products:**

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#### **3.3.1 Storage, Release, or Disposal of Petroleum or Petroleum Products**

Petroleum or petroleum products in excess of 55 gallons were stored throughout the Property. Petroleum or petroleum product releases or disposal in excess of 55 gallons also occurred throughout the Property. The release or disposal of these petroleum products was remediated at the time of the release or, where required, subsequently remediated as part of the installation restoration program. All appropriate remediation has been completed. A summary of the buildings or areas in which petroleum or petroleum products were stored, released, or disposed is provided in Table 3 – Notification of Petroleum Products Storage, Release, or Disposal.

### 3.3.2 Underground and Above-ground Storage Tanks (UST/AST)

There are currently no underground storage tanks (USTs) and no aboveground storage tanks (ASTs) on the property that were used for storage of petroleum products. Originally, there were eight USTs on the property, however, they have all been removed during the past several years. Additionally, all ASTs on the property have been removed as part of the liquidation effort. There was petroleum contamination discovered at the large fuel oil AST near building 70-43 in area L6. It was determined that fuel oil leaked from the AST. This AST was removed and the petroleum/petroleum product contamination was subsequently remediated in accordance with established Preliminary Remediation Goals (PRGs) and applicable State law in 1997. The release of any other petroleum products was remediated at the time of the UST/AST closure or subsequently remediated as part of the installation restoration program in accordance with established regulatory requirements in 1997. A summary of the sites where petroleum or petroleum products were stored is at Table 3 – Notification of Petroleum Products Storage, Release, and Disposal.

### 3.4 Polychlorinated Biphenyl (PCB) Equipment:

The following PCB containing equipment is located on the property: 1 transformer near Water Tower 67-1. This transformer is operational, properly labeled in accordance with federal and state regulations, and has been determined not to be leaking. There is evidence that PCBs or PCB contaminated fluids were released from PCB containing equipment at 22-1, 70-1, 70-2, 70-13, 70-45, and 70-46. Sampling conducted at 22-1 did not indicate PCB levels above Remedial Goals and no remedial actions were taken. All other PCBs or PCB contaminated fluids were remediated at the time of the release or during the removal action that was completed in October 1997. All inactive transformers have been removed during the liquidation effort. The deed will include the PCB notification provision contained in the Environmental Protection Provisions document at enclosure 3.

### 3.5 Asbestos:

The PAS (EBS) and an asbestos survey conducted in 1993 indicate that asbestos containing materials (ACM) are present in most of the buildings. The ACM may include types of nonfriable asbestos such as: floor tiles, pipe insulation, transite roofing and walls. The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been removed. For additional information see also section 4.4 of volume 1 of the PAS. During spring 1997, a liquidation contractor began removing all friable asbestos installation wide. This removal effort was completed installation wide during December 1997. Any previous unidentified sources of friable asbestos encountered during liquidation activities have been properly removed from the site and disposed. The deed will include the asbestos warning and covenant included in the Environmental Protection and Deed Provisions at Enclosure 7.

### **3.6 Lead-Based Paint (LBP):**

Based on the fact that almost all of the buildings and structures were constructed prior to 1978, virtually all buildings on the property are presumed to contain lead-based paint. Depending upon the building, the lead containing paint may be either interior or exterior. The Water Tower 67-1 is presumed to have been sandblasted and painted regularly. In August 1996, a 24-point composite sample was collected beneath the tower and analyzed for total lead and chromium and TCLP lead. The levels of total lead and chromium were below PRGs; TCLP lead was below reporting limits. The deed will include the lead-based paint warning and covenant included in the Environmental Protection and Deed Provisions (Enclosure 7). For additional information see section 4.10 of volume 1 of the PAS. Noteworthy here is that PL 104-106 specifies the real property at JOAAP that is the subject of this FOST be operated as a landfill by the County.

### **3.7 Radiological Sources or Contamination:**

There is no evidence that the Army used or stored, handled or disposed radioactive materials on or adjacent to the Parcel/Property described in section 2 of this FOST. For additional information see section 4.13 of volume 1 of the PAS.

### **3.8 Radon:**

Radon is a naturally occurring radioactive gas. The Army did not use or produce radon at JOAAP. There are no available radon tests results for the Property. Long-term radon monitoring conducted in residential structures outside the Property did not indicate any results above the 4 pCi/L USEPA residential action level. Short-term radon monitoring in nonresidential structures outside the Property did show results above the 4 pCi/L USEPA residential action level. All buildings in the Property are commercial or industrial buildings, and there is no EPA action level for these. Also no buildings or parcels at JOAAP will be used for residential purposes in the future. For additional information on radon, see also section 4.7 and table 4-8 of volume 1 of the PAS.

### **3.9 Unexploded Ordnance:**

Ordnance and explosives (OE) investigations, consisting of document review, visual site inspection, and interviews identified no potential OE locations within or immediately adjacent to the Property. Explosive classifications were found for only three of the buildings on the Property: 62-26C, 70-10, and 70-59. All three buildings were classified "0" (never explosively contaminated). During the visual site inspection, field screening did not detect explosive residues in the locations that handled explosive-contaminated equipment and clothing. No information was found to indicate that OE is present in the Property. The area was not used for the testing, manufacture, or disposal of any munitions. Existing information indicates that the property that is the subject of this FOST, (L6 and L114), served as a maintenance area to support

the LAP operations and to provide a buffer area. While based on this survey and information, OE is not expected to be found on this parcel, because of the nature of the use of the Joliet Army Ammunition Plant, a Notice of the Potential for Presence of Unexploded Ordnance or Explosive has been added to the Environmental Protection and Deed Provisions, Enclosure 7

### **3.10 Other Hazardous Conditions**

#### **3.10.1 Pesticides**

Pesticides have likely been applied in and around buildings, along railroad tracks, along fence lines, and by lessees. It is likely that some residuals remain from the use of pesticides on-site. Low concentrations (up to 11 ppb) of four pesticides (endrin ketone, DDE, dieldrin, and heptachlor epoxide) were detected in seven soil samples collected at one foot below ground surface or less. All detections were below site Remediation Goals.

Records show that mixing and dispersing of pesticides is known to have been conducted at Building 70-46 (L6) between 1957 and 1963. This mixing area was subsequently cleaned and closed. Pesticides used included DDT, chlordane, warfarin, malathion, and lindane. No stored pesticides were found in any building during the 1996 and 1997 PAS/EBS surveys of the Property.

#### **3.10.2 Contaminants in Groundwater:**

The hydrogeology of the area is divided into four aquifer systems and major confining beds (layers). From the uppermost going downward, the aquifer systems are: (1) the glacial drift, (2) shallow bedrock (Silurian Dolomites), (3) Cambrian-Ordovician, and (4) Mount Simon. Groundwater flow is generally westward but is locally influenced by streams that are incised into the glacial drift. The shallow overburden is composed of glacial drift and is underlain by the Silurian Dolomite aquifer. Deeper bedrock aquifers are isolated from the shallow aquifer by low-permeability shale beds in the Maquoketa Group. Groundwater at the JOAAP has been determined to be both IL Class I and Class II. Groundwater in the glacial drift has been classified as Class II because its low water yield does not supply usable quantities of groundwater. ~~The Silurian Dolomite aquifer is considered a Class I aquifer and is used in the vicinity of JOAAP as a water resource. Elevated levels of sulfate and iron are present in the Silurian Dolomite aquifer.~~

The majority of an Installation Restoration Program (IRP) Site L6 is within the Will County Property. Shallow groundwater risks for future residents exceeded the USEPA point of departure for both carcinogenic and noncarcinogenic hazards, due entirely to the presence of arsenic. However, the arsenic level is below the site Remediation Goal (RG) as well as drinking water standards. The relatively low levels of contaminants detected in groundwater are not considered to pose a risk to human health or the environment under the future land use scenario



as a landfill. Use of groundwater from the glacial till and Silurian Dolomite aquifer is approved for commercial and industrial purposes, but should be restricted from use for residential purposes.

While previous studies have identified low-level site-related contaminants in surface water and sediments, the Army has determined that the aquatic components of the ecological landscape at the Property are not significantly impacted by contamination as defined by the assessment endpoints in the Ecological Risk Assessment, June 1993.

On the basis of the above, certain terms, conditions, reservations, and restrictions are required. Disclosure of conditions and use restrictions are described below and in the Environmental Protection and Deed Provisions, Enclosure 7 and will be included in the transfer document (deed).

#### 4. REMEDIATION:

All necessary remediation activities on the property have been completed. There are no other environmental remediation orders or agreements applicable to the property. In addition, environmental conditions on adjacent property do not present a hazard affecting the transfer of the Will County property. The deed will include a provision reserving the Army's right to conduct remediation activities in the Environmental Protection and Deed Provisions (Enclosure 7).

In July 1987 (Mfg. side) and March 1989 (LAP), the EPA placed JOAAP on the National Priorities List (NPL). In 1989, JOAAP signed a Federal Facilities Agreement (FFA) with the Illinois Environmental Protection Agency (IEPA) and EPA Region 5. All soil remediation activities on the Property have been completed. The JOAAP installation wide signed ROD has delineated Limited Action for the groundwater remedy for Groundwater Remedial Units (GRUs) 1, 2, and 3. No groundwater remediation is required for the Will County Landfill property.

At CERCLA site L6, a non-time critical removal action commenced during spring 1997 and was completed in October 1997. In May 1997, an engineering evaluation/cost analysis (EE/CA) was written for site L6 and agreed to by the Army, the EPA, the IEPA, and the public including the Restoration Advisory Board (RAB). This EE/CA describes the decision on what action was most appropriate for site L6. The EE/CA is located at the two public repositories and the on-site JOAAP library. PCB and petroleum contaminated soils and sediments were remediated and also, drains, sumps, oil/water separators and pits were either cleaned or cleaned and grouted in all of the buildings within L6. Four concrete pads, apparently for vehicle maintenance, are located outside the East End of Building 70-47. Three are wash racks, and one is a grease pit. All were connected to the storm sewer system. The storm sewer as well as the floor drains from the building passed through grease interceptors. Field analysis of oily sediment found in a large service pit in the locomotive service and storage shop (Building 70-13) indicated the sediment contained PCBs at levels above RGs. As part of a 1994 removal action, the oil

skimmer sump and associated piping to which Bldg. 70-13 would have been connected was emptied and disposed. Building 70-2 contained large equipment in storage, some of it tagged as containing over 50 ppm PCBs, and has floor drains throughout its bays that may connect to an oil/water separator on the west end of the building. All of these items were addressed during the removal action completed in October 1997 and the equipment was removed as part of the liquidation effort.

The final report describing the actions taken is titled Final Report, Environmental Removal Action, L6/Group 70 Area, JOAAP, Wilmington, IL, dated March 1998. The EPA Region 5 and the IEPA concur with the Army that the property does not pose risks above levels deemed protective, provided that the Property is used for the proposed industrial or landfill purposes. For this reason, any residential use of shallow groundwater is prohibited. Further, the L6 site was declared "No Further Action" in the JOAAP Record of Decision dated October 1998. The deed will include a provision reserving the Army's right to conduct remediation activities in the Environmental Protection and Deed Provisions at Enclosure 7.

## 5. REGULATORY COORDINATION:

The IEPA and the EPA Region 5 were notified of the initiation of the FOST. Regulatory and future owner's comments received during the draft FOST comment period, 23 FEB – 23 MAR 99 were reviewed and incorporated as appropriate. All comments received from the IEPA and the EPA during the review process were resolved and incorporated into the FOST at enclosure 4 (below).

Written comments were also received from the Grantee and have been resolved. A copy of these comments and the Army's position/resolution of these comments are included in the FOST (enclosure 5).

## 6. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE AND CONSISTENCY WITH LOCAL REUSE PLAN:

The environmental impacts associated with the proposed transfer of the Property have been adequately analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis have been documented in an Environmental Assessment and subsequent Finding of No Significant Impact dated 20 Nov 1997. The environmental effects of the transfer were determined by the Army not to be significant.

The proposed transfer addressed by this FOST is consistent with the reuse alternatives stated in the above referenced NEPA document and with the intended reuse of the Property set forth in the Reuse Plan created by the Joliet Arsenal Citizens Planning Commission. The concepts contained in this reuse plan were adopted into Public Law (PL) 104-106 which enacted in February 1996.

## 7. ENVIRONMENTAL PROTECTION PROVISIONS:

On the basis of the above results from the site-specific PAS (EBS), and other studies, and in consideration of the intended use of the property, certain terms, conditions, reservations, and restrictions are required for the proposed transfer of the Property. Any non-environmental deed restrictions will be made a part of the deed. The environmental deed restrictions are referred to in the ROD as well. The Environmental Protection and Deed Provisions are at Enclosure 7 and will be made a part of the deed. The transfer deed will contain the clause required under CERCLA §120(h)(3)(A)(iii) granting the United States access to the Will County Landfill Property in any case in which response action or corrective action is deemed necessary after the date of transfer.

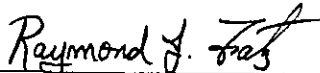
## 8. FINDINGS OF SUITABILITY TO TRANSFER:

Based on the above information, I conclude that all Department of Defense requirements to reach a finding of suitability to transfer the Property/Parcel to Will County, Illinois for the development of a landfill have been fully met. However, this is subject to the terms and conditions in the attached Environmental Protection and Deed Provision (Enclosure 37 and as required by CERCLA section 120(h)(3). I conclude that the property is suitable for transfer for the intended purpose, the anticipated use for the transfer is consistent with protection of human health and the environment, and assert adequate assurances that the United States will take any additional remedial action found to be necessary that has not been taken on the date of the transfer.

In addition to the specific terms, conditions, reservations, and restrictions set forth in the Environmental Protection Provisions, the deed for this transaction will contain:

- The covenant under CERCLA §120(h)(3)(A)(ii)(I) warranting that all remedial action under CERCLA necessary to protect human health and the environment with respect to hazardous substances remaining on the Property has been taken before the date of transfer;
- The covenant under CERCLA §120(h)(3)(A)(ii)(II) warranting that any remedial action under CERCLA found to be necessary after the date of transfer shall be conducted by the United States; and
- The clause as required by CERCLA §120(h)(3)(A)(iii) granting the United States access to the Property in any case in which remedial action or corrective action or any type of monitoring is found to be necessary after the date of transfer.

As required under the CERCLA Section 120(h) and DOD FOST Guidance, notification of hazardous substance activities and petroleum product activities shall be provided in the transfer document. See Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal and Table 3 – Notification of Petroleum Product Storage, Release, or Disposal.



OCT 19 1999

RAYMOND J. FATZ

date

Deputy Assistant Secretary of the Army

For Environment, Safety, and Occupational Health

## 10 Enclosures:

Table 1 Description of Property

Table 2 Notification of Hazardous Substance Storage, Release, and Disposal

Table 3 Notification of Petroleum Products Storage, Release, and Disposal

Encl. 1 Figure 1 Site Map of Proposed Transfer Property

Figure 2 Plat of Survey for Will County Landfill at the Joliet Arsenal

Encl. 2 DoD Environmental Condition Codes

Encl. 3 Environmental Protection Provisions [Now revised &amp; consolidated in Enc. 7]

Encl. 4 Regulatory Comments

Encl. 5 Public Comments

Encl. 6 Deed Restrictions [Now revised &amp; consolidated in Encl. 7]

Encl. 7 Final Environmental Protection and Deed Provisions

TABLE 1: Description of Property

Section	Building	Description	ECP Category
L6		Group 70	
	22-1	South Substation	3
	22-2	South Substation	1
	22-3	Control Building	1
	70-10	Laundry	4
	70-13	Locomotive Storage & Repair Shop	4
	70-16	Motor Pool and Gas Station	2
	70-34	Heavy Equipment Storage Shed	1
	70-37	Paint Storage Shed	1
	70-40	Oxygen Cylinder Storage	1
	70-41	Acetylene Cylinder Storage	1
	70-42	Chlorine Cylinder Storage	1
	70-44	Carpenter Shop	3
	70-45	Warehouse	4
	70-46	Machine Shop	4
	70-47	Automotive Shop	4
	70-49	Storage Shed	1
	70-59	Laundry	1
	70-60	Storage Structure	1
L114		PAS Survey Section L114 - Landfill Area	
	62-26C	Change House (South)	1
	67-1	Tank, Elevated	1
	67-1A	Radio Transmitter Building	1

TABLE 2: Notification of Hazardous Substance Storage, Release, and Disposal\*

Building	Name of Hazardous Substance(s)	Date of Storage, Release, and Disposal
70-2	Stoddard Solvent	Used, 1954
70-10	TNT	Released, 1957
70-13	Carbon Tetrachloride	Used, 1949, 1954
	Paint Mist	Used, 1955, 1957
	Thinner Vapor	Used, 1955, 1957
	Chlorinated Hydrocarbon	Used, 1955, 1957
	Stoddard Solvent	Used, 1955-63
	Methylene Chloride	Used, 1957
	Perchloroethylene	Used, 1957
	Petroleum Hydrocarbons	Used, 1957
	Petroleum	Used, 1961
	Methyl Chloroform	Used, 1963
70-44	Paint Mist	Used, 1957, 1963
	Thinner Vapor	Used, 1957, 1963
	Metal Dusts	Released, 1963
70-45	Paint Mist	Used, 1955
	Thinner Vapor	Used, 1955
	Stoddard Solvent	Used, 1963
	Acetone	Stored, Used, 1986-93
	LIX	Stored, Used, 1986-93
	Acetylene	Stored, 1996
	Hydraulic Oil	Stored, 1996
	Oils/greases	Used, 1963
70-46	Ammonia	Used, 1955
	Trichloroethylene	Used, 1955
	Stoddard Solvent	Used, 1955-63
	Cutting Oils	Used, 1955-63
	Coolants	Used, 1955, 1957
	Paint Mists	Used, 1961
	Thinner Vapors	Used, 1961
	DDT	Used 1957-63
	Chlordane	Used, 1957-63
	Warfarin Dust	Used, 1957-63
	Malathion	Used, 1961, 1963
	Lindane	Used, 1961, 1963
	Metal Dusts	Released, 1963
	Acetone	Stored, Used, Unknown
	LIX	Stored, Used, Unknown

70-47	Paint Mists	Used, 1955-63
	Thinner Vapors	Used, 1955-63
	Sulfuric Acid	Used, 1955-63
	Ammonium Hydroxide	Used, 1955-63
	Stoddard Solvent	Used, 1955-63
	Petroleum Hydrocarbon	Used, 1957
	Chlorinated Hydrocarbon	Used, 1957-61
	Carbon Tetrachloride	Used, 1957-63
	Leaded Gasoline	Used, 1957
	Lead	Used, 1957-63
	Petroleum	Used, 1961
	Ether	Used, 1961
	Oils/greases	Used, 1957, 1963
	Cresylic Acid	Used, 1957, 1961-63

\* The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Liability, and Compensation Act (CERCLA or 'Superfund') 42 U.S.C. section 9620(h). This table provides information on the storage of hazardous substances for one year or more in quantities greater than or equal to 1000 kilograms or the hazardous substance's CERCLA reportable quantity (which ever is greater). In addition, it provides information on the known release of hazardous substances in quantities greater than or equal to the substances CERCLA reportable quantity. See 40 CFR Part 373.

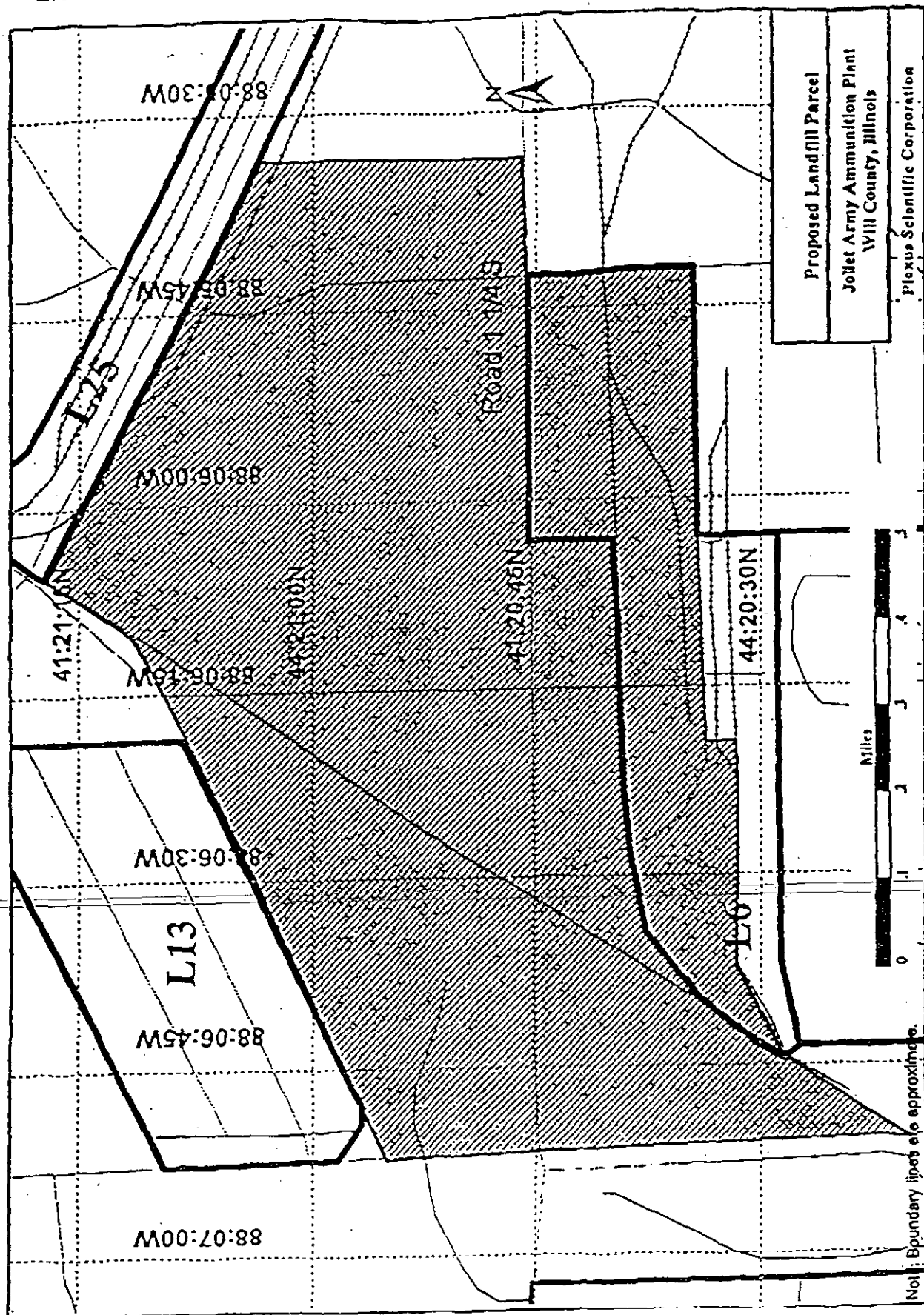
TABLE 3: Notification of Petroleum Products Storage, Release, and Disposal\*

Building	Name of Petroleum Product (s)	Size and Type of Storage	Date of Storage, Release or Disposal
70-13	Waste	6,000 gal UST	Used, ?-1994
	oil	1,500 gal UST	Used, ?-1994
70-16	Gasoline	1,500 gal UST	Used, 1966-1994
70-51 to 58	Fuel Oil	4 - 20,000 gal AST	Used, 1941-1991
		4 - 20,000 gal UST	Used, 1941-1991
Parking lot on east side of Group 70	Gasoline	20,000 gal AST	Used, 1966-1994

\*AMC's unofficial policy for notification includes amounts of petroleum in excess of 55 gallons either stored for greater than one year or released



ENCLOSURE 1: SITE MAP OF PROPOSED TRANSFER PROPERTY



**ENCLOSURE 2: ENVIRONMENTAL CONDITION CODES**

**Category 1:** Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).

**Category 2:** Areas where only release or disposal of petroleum products has occurred.

**Category 3:** Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response.

**Category 4:** Areas where release, disposal, and/or migration of hazardous substances has occurred, and all removal or remedial actions to protect human health and the environment have been taken.

**Category 5:** Areas where release, disposal, and/or migration of hazardous substances has occurred, and removal or remedial actions are underway, but all required remedial actions have not yet been taken.

**Category 6:** Areas where release, disposal, and/or migration of hazardous substances has occurred, but required actions have not yet been implemented.

**Category 7:** Areas that are not evaluated or require additional evaluation.

### ENCLOSURE 3: ENVIRONMENTAL PROTECTION PROVISIONS

The following conditions, restrictions, and notifications will be placed in the deed to ensure protection of human health and the environment and to preclude any interference with ongoing or completed remediation activities at Joliet Army Ammunition Plant (JOAAP).

**INCLUSION OF PROVISIONS:** The person or entity to whom the property is transferred shall neither transfer the property, lease the property, nor grant any interest, privilege, or license whatsoever in connection with the property without the inclusion of the environmental protection provisions contained herein, and shall require the inclusion of such environmental protection provisions in all further deeds, transfers, leases, or grant of any interest, privilege, or license.

**NPL PROPERTY:** The United States acknowledges that JOAAP has been identified as a National Priorities List (NPL) site under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended. The TRANSFEREE acknowledges that the United States has provided it with a copy of the JOAAP Federal Facility Agreement (FFA) entered into by the United States Environmental Protection Agency (EPA), Region V, the State of Illinois, and the Department of the Army, effective May 1989, and will provide the TRANSFEREE with a copy of any amendments thereto. The person or entity to whom the property is transferred agrees that the FFA, the JOAAP ROD, or any amendment to them, or any subsequent ROD takes precedence over the terms of property transfer should a conflict arise. The person or entity to whom the property is transferred, further agrees that notwithstanding any other provisions of the property transfer document, the United States assumes no liability to the person or entity to whom the property is transferred should implementation of the FFA interfere with their use of the property. The person or entity to whom the property is transferred or any subsequent transferee, shall have no claim on account of any such interference against the United States or any officer, agent, employee or contractor thereof.

**NO LIABILITY FOR NON-ARMY CONTAMINATION:** The Army shall not incur liability for additional response action or corrective action found to be necessary after the date of transfer in any case in which the person or entity to whom the property is transferred, or other non-Army entities, is identified as the party responsible for contamination of the property.

**RESTRICTED TO COMMERCIAL/INDUSTRIAL USE:** The Department of the Army has undertaken careful environmental study of the property and concluded, to which the Grantee agrees, that the property is limited by its environmental condition to commercial and industrial uses. In order to protect human health and the environment and further the common environmental objectives and land use plans of the United States, State of Illinois and Will County, IL, the covenants and restrictions shall be included to assure the use of the property is consistent with environmental condition of the Property. These following restrictions and covenants benefit the land retained by the Grantor and the public welfare generally and are consistent with state and federal environmental statutes.

R2002063838

**LAND USE RESTRICTIONS:****A. Restrictions and Conditions**

The Grantee covenants for itself, its successors, and assigns not to use the Property for residential purposes, the Property having been remediated only for commercial and industrial uses. The Grantee, for itself, its successors or assigns covenants that it will not undertake nor allow any activity on or use of the property that would violate the restrictions contained herein. These restrictions and covenants are binding on the Grantee, its successors and assigns, future owners, heirs and executors; shall run with the land; and are forever enforceable.

**B. Enforcement**

The restrictions and conditions stated in Section A benefit the public in general and the territory surrounding the Property, including lands retained by the United States, and, therefore, are enforceable by the United States government. The Grantee covenants for itself, its successors, and assigns that it shall include and otherwise make legally binding, the restrictions in all subsequent lease, transfer or conveyance documents relating to the Property subject hereto.

**GROUNDWATER RESTRICTION:****A. Restrictions and Conditions**

The Grantee covenants for itself, its successors, and assigns not to:

(a) access or use shallow ground water underlying the Property for residential purposes, the Property having been remediated only for commercial and industrial uses. For the purpose of this restriction, "groundwater" shall have the same meaning as in section 101(12) of CERCLA. The Grantee, for itself, its successors or assigns covenants that it will not undertake nor allow any activity on or use of the property that would violate the restrictions contained herein. These restrictions and covenants are binding on the Grantee, its successors and assigns, future owners, heirs and executors; shall run with the land; and are forever enforceable.

**B. Enforcement**

The restrictions and conditions stated in Section A benefit the public in general and the territory surrounding the Property, including lands retained by the United States, and, therefore, are enforceable by the United States government. The Grantee covenants for itself, its successors, and assigns that it shall include and otherwise make legally binding, the restrictions in all subsequent lease, transfer or conveyance documents relating to the Property subject hereto.

### C. Army Access

The Army and its representatives shall, for all time, have access to the property for the purpose of installing and /or removing groundwater monitoring wells, and to perform continued monitoring of groundwater conditions, allowing chemical and/or physical testing of wells to evaluate water quality and/or aquifer characteristics. The property owner shall allow ingress and egress of all equipment necessary to accomplish the same.

### LEAD-BASED PAINT WARNING AND COVENANT:

\*Note – the property is not intended for residential use, per P.L. 104-106, and residential use is prohibited by the JOAAP Record of Decision, dated October 1998.

- (1) The Property does not contain structures or buildings suitable for residential dwellings. The TRANSFEREE, and its successors and assigns, future owners, heirs and executors, is hereby informed and does acknowledge that all buildings on the property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Lead exposure is especially harmful to young children and pregnant women. Such property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including learning disabilities, reduced intelligence quotient, behavioral problems and impaired memory.
- (2) Available information concerning known lead-based paint and/or lead-based paint hazards, the location of lead-based paint and/or lead-based paint hazards, and the condition of painted surfaces is contained in the Environmental Baseline Survey, which has been provided to the TRANSFEREE. Additionally, the Finding of Suitability to Transfer (FOST) has been provided to the TRANSFEREE. The TRANSFEREE has been provided with a copy of the federally approved pamphlet on lead poisoning prevention. The TRANSFEREE hereby acknowledges receipt of all of the information described in this paragraph.
- (3) A risk assessment or inspection by the TRANSFEREE, its successors and assigns, future owners, heirs and executors, for possible lead-based paint hazards is recommended prior to the transfer of the Property. The TRANSFEREE, its successors and assigns, future owners, heirs and executors, acknowledge that they have received the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards prior to execution of the transfer.
- (4) The TRANSFEREE, its successors and assigns, future owners, heirs and executors, shall comply with all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. The TRANSFEREE shall not permit use of any buildings or structures on the Property for residential habitation without: (i) inspecting for the presence of lead-based paint and/or lead-based paint hazards; (ii) abating and eliminating lead-based hazards as required by and in accordance with all applicable laws and regulations; and (iii) complying

with the notice and disclosure requirements under applicable Federal and state law. The TRANSFEREE agrees to be responsible for any future remediation of lead-based paint found to be necessary on the Property.

(5) The Army assumes no liability for remediation or damages for personal injury, illness, disability, or death, to the TRANSFEREE, its successors and assigns, future owners, heirs and executors, sublessees or to any other person, including members of the general public, arising from or incident to possession and/or use of any portion of the Property containing lead-based paint. The TRANSFEREE, its successors and assigns, future owners, heirs and executors, further agrees to indemnify and hold harmless the Army, its officers, agents and employees, from and against all suits, claims, demands or actions liabilities, judgments, costs and attorneys' fees arising out of, or in any manner predicated upon, personal injury, death or property damage resulting from, related to, caused by or arising out of the possession and/or use of any portion of the Property containing lead-based paint. The obligation of the TRANSFEREE, its successors and assigns, future owners, heirs and executors, shall apply whenever the United States incurs costs or liabilities for actions giving rise to liability under this section.

#### **NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT:**

a. The TRANSFEREE is hereby informed and does acknowledge that friable and non-friable asbestos or asbestos-containing materials ("ACM") have been found on the Property, as described in the final base-wide EBS. The ACM on the property does not currently pose a threat to human health or the environment. All friable asbestos that posed a risk to human health has removed.

b. The TRANSFEREE covenants and agrees that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos; and that the Army assumes no liability for future remediation of asbestos or damages for personal injury, illness, disability, or death, to the TRANSFEREE, its successors or assigns, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the Property, whether the TRANSFEREE, its successors or assigns have properly warned or failed to properly warn the individual(s) injured. The TRANSFEREE agrees to be responsible for any future remediation of asbestos found to be necessary on the Property.

c. Unprotected or unregulated exposures to asbestos in product manufacturing, shipyard, building construction workplaces have been associated with asbestos-related diseases. Both the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) regulate asbestos because of the potential hazards associated with exposure to airborne asbestos fibers

d. The transferee acknowledges that it has inspected the property as to its asbestos content and condition and any hazardous or environmental conditions relating thereto. The transferee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the property, including, without limitation, any asbestos hazards or concerns.

e. No warranties either express or implied, are given with regard to the condition of the property, including, without limitation, whether the property does or does not contain asbestos or is or is not safe for a particular purpose. The failure of the TRANSFEREE to inspect, or to be fully informed as to the condition of all or any portion of the property offered, will not constitute grounds for any claim or demand against the United States.

### PCB CONTAINING EQUIPMENT NOTIFICATION

The GRANTEE is hereby informed and does acknowledge that equipment containing Polychlorinated Biphenyls (PCBs) exists on the Property to be conveyed, as listed in Section 3.4 of the FOST document. All PCB containing equipment has been properly labeled in accordance with applicable law and regulation to provide notification to future users. Any PCB contamination or spills related to such equipment has been properly remediated prior to conveyance. The PCB equipment does not currently pose a threat to human health or the environment.

Upon request, the army agrees to furnish to the GRANTEE any and all records in its possession related to such PCB equipment necessary for the continued compliance by the GRANTEE with applicable laws and regulations related to the use and storage of PCBs or PCB containing equipment.

The GRANTEE covenants and agrees that its continued possession, use and management of any PCB containing equipment will be in compliance with all applicable laws relating to PCBs and PCB containing equipment, and that the Army assumes no liability for the future remediation of PCB contamination or damages for resonant injury, illness, disability, or death to the GRANTEE, its successors or assigns, or to any other person, including members of the general public arising from or incident to contact of any kind whatsoever with PCBs or PCB containing equipment, whether the GRANTEE, its successors or assigns have properly warned or failed to properly warn the individual(s) injured. The GRANTEE agrees to be responsible for any future remediation of PCBs or PCB containing equipment found to be necessary on the Property.

### E. Notice of the Potential for the Presence of Unexploded Ordnance or Explosives

Ordnance and explosive (OE) investigations indicate that OE is not likely on this property.

However, because this is a former military installation with a history of OE there is a slight potential for OE to be present on the property. In the event the GRANTEE, its successor, and assigns, should discover what appears to be of an ordnance or explosive nature on the Property, the GRANTEE shall not attempt to remove or destroy such items, will immediately stop any excavation or other work in the area, and notify the local Police Department and the nearest Department of the Army Explosive Ordnance Detachment. The Army acknowledges its responsibility for OE/UXO and will take prompt action upon notification of discovery.



**ENCLOSURE 4: REGULATORY COMMENTS**

\*Note – Several constructive observations were received during the period that more are applicable to Deed consideration than FOST determination. Army responses may reference this note.

**USEPA Comments on the Finding of Suitability to Transfer (FOST)  
Will County Landfill Parcel**

1. Section 1 - Figures 1 and 2 were not provided with the draft FOST. Provide these figures to USEPA prior to finalization of the FOST for our review and comment.

*Response – The draft version was provided for comment by email transmission without any graphic files. These are available and included in this version.*

2. Section 3.1, Environmental Condition of Property (ECP) Categories for Specific Parcels - Parcel 22-1 should be considered a Category 3 property since Section 3.4 indicates polychlorinated biphenyls (PCBs) were released from PCB containing equipment at 22-1.

*Response – agreed. The classification has been revised.*

3. Section 3.1, ECP Categories 3 and 4 - Parcels are identified as being both Category 3 and 4 properties. Based on information presented in this FOST, USEPA considers parcel 70-44 a Category 3 property, and parcels 70-2, 70-10, 70-13, 70-45, 70-46, and 70-47 Category 4 properties.

*Response – agreed. The classifications have been revised.*

4. Section 3.3.2, second to last sentence - Change "requirement" to "requirements."

*Response – This change has been made.*

5. Section 3.4 - The FOST states a PCB containing transformer near Water Tower 67-1 is operational. Specify the PCB content of this transformer in the FOST.

*Response – Sample data is not currently available. The transformer is currently in service and will be removed when it is no longer needed.*

6. Section 3.4, third to last sentence - This statement is inaccurate since PCB contaminated soil was not remediated at parcel 22-1. Include a statement that parcel 22-1 is an area where

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removal or remedial response.

*Response – The text has been revised to incorporate this information.*

7. Section 3.6, last sentence - Public Law (PL) 104-106 does not discuss or prohibit the future use of JOAAP for residential purposes. The law does specify certain land uses (e.g., prairie, cemetery, landfill, industrial parks). Clarify the sentence to state PL 104-106 specifies the real property at JOAAP that is the subject of this FOST be operated as a landfill by the County.

*Response – The text has been revised to incorporate this information.*

8. Section 3.9 - Describe in the FOST what a classification of "0" means.

*Response – a description of the classification has been inserted.*

9. Section 3.10.1, third to last sentence - Modify or delete this sentence since pesticide handling certainly occurred after 1963. It may be more accurate to state no records are available to document pesticide handling prior to 1957 or after 1963.

*Response – the text has been revised to incorporate this information.*

10. Section 3.10.2, paragraph 1, sentence 3 - Indicate the arsenic concentration was below drinking water standards as well as below PRGs.

*Response – the text has been revised to incorporate this information.*

11. Section 3.10.2, paragraph 1, sentence 4 - Modify the sentence to state the groundwater does not pose a threat to occupants provided the groundwater is not used as a residential drinking water source.

*Response – the text has been revised to incorporate this information.*

12. Section 3.10.2, paragraph 1, sentence 6 - This sentence does not make sense since arsenic in soil was not identified as a contaminant of concern at this site. It is unclear how the PCB and petroleum soil and sediment cleanup would lead to decreased levels of arsenic in groundwater.

*Response – the text has been edited to remove the confusion.*

13. Section 3.10.2, paragraph 1, second to last sentence - Based on the remedial investigation data, it is unclear why restrictions on the use of groundwater in this parcel are being proposed. Make any necessary modifications. Furthermore, the 1998 Record of Decision

does not require deed restrictions to limit the use of groundwater on the Will County Parcel.

*Response – the text has been revised to incorporate this information.*

14. Section 3.10.2, paragraph 1, last sentence and paragraphs 2 and 3 - Although this information is useful and should be presented somewhere in this FOST, it is unclear why the information related to surface water, sediment, and soil is presented in this section, Contaminants in Groundwater. Make any necessary modifications.

*Response – the section was edited for clarity. Information has been moved to more suitable sections.*

15. Section 4, paragraphs 1 and 2, last sentence in each - The Army should reserve its rights for future activities, and not limit its rights to conduct remediation activities.

*Response – see Note above*

16. Section 4, paragraph 2, fourth to last sentence - Add “and sediments” after contaminated soils and “oil/water separators” after sumps.

*Response – This addition has been made.*

17. Section 5 - Clarify what is meant by the FOST public comment period. USEPA does not recognize the current period as an official public comment period since it was not advertised and comments from the public at large were not solicited. It may be more appropriate to state comments were received from USEPA (and other interested parties/stakeholders) on the draft FOST.

*Response – the text has been edited for clarity.*

18. Section 7 - Clarify the intent of first sentence. It does not read well, and may benefit from restructuring (e.g., move the last part of the sentence to the beginning).

*Response – the text has been edited for clarity.*

19. Enclosures 3 and 6 - Based on a legal opinion from the Army Corp of Engineers, USEPA recommends including, “future owners, heirs, and executors” wherever the language, “the Grantee, its successors, and assigns” is used.

*Response – see Note above.*

20. Enclosure 3, Restricted to Commercial/Industrial Use - USEPA recommends striking, “highest and best” from the first sentence.

*Response – this change has been made.*

21. Enclosure 3, A. Restrictions and Conditions - This subparagraph should be preceded by, "Land Use Restrictions." Additionally, USEPA recommends adding a subparagraph C to discuss Army Access (as is provided under Groundwater Restrictions) that would provide the Army access to monitor land use and deed restrictions and conduct any future activities.

*Response – the heading has been added. The appropriate access will be provided in the deed.*

22. Enclosure 3, Groundwater Restriction, A. Restrictions and Conditions - As stated earlier, it is unclear why the Army is proposing to limit the use of groundwater for this parcel. The Army may want to consider adding restrictions on the use or disturbance of groundwater in a way that could cause the migration of the contaminated groundwater plume at site L14.

*Response – the text has been edited for clarity.*

23. Enclosure 3, Lead-Based Paint Warning and Covenant - USEPA recommends modifying the second sentence in paragraph 4 to state, "The transferee shall not permit the use of any buildings or structures on the Property for residential habitation."

*Response – see Note above.*

24. Enclosure 3, Notice of Presence of Asbestos and Covenant - USEPA recommends modifying the sentences 2 and 3 in paragraph c to state, "Both the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) regulate asbestos. Potential hazards are associated with exposure to airborne asbestos fibers."

*Response – this change has been made.*

25. Enclosure 3, PCB Containing Equipment, last sentence - USEPA may hold the Army responsible for any future releases from PCB containing equipment on this parcel.

*Response – noted. This does not change the FOST.*

26. Enclosure 6, paragraph 1 - USEPA recommends striking, "or substantially equivalent provisions" from the sentence and adding, "future" before "remediation activities."

*Response – the text has been revised to incorporate this information.*

27. Enclosure 6, II - USEPA recommends striking, "highest and best" from the first sentence.

*Response – this change has been made.*

28. Enclosure 6, III, D - USEPA recommends striking the word "fully" from this sentence. USEPA may hold the Army responsible for deed restriction violations of subsequent land owners.

*Response – noted. This does not change the FOST.*

29. Enclosure 6, IV, E - USEPA recommends inserting after "JOAAP ROD" the following: "...any amendments to the JOAAP ROD, any subsequent JOAAP RODs, or CERCLA, as amended..."

*Response – the text has included "along with any subsequent RODs".*

29. Enclosure 6, IV, E - USEPA believes this information regarding access would be more appropriately placed at the end of Section II, which discusses deed restrictions, instead of this section, which discusses CERCLA remediation.

*Response – this FOST format is consistent with guidance provided.*

#### **DRAFT**

#### **Comments of Charles T. Grigalauski, Project Manager, Illinois Environmental Protection Agency on the February 1999 Joliet Army Ammunition Plant draft Finding of Suitability to Transfer to Will County, Illinois.**

1. Under 3. ENVIRONMENTAL CONDITION OF PROPERTY: What is met by 'a complete search of agency files'? To my knowledge, no Army contractor(s) reviewed Illinois EPA official archive files for JAAP.

*Response – the text has been revised for clarity.*

2. Under 3.3.1. Mention should be made of a petroleum discharge to surface water in November of 1997 in the south portion of L6 Group 70. Notification of the discharge was made on November 20, 1997 and the following incident numbers issued: NRC 412553 and IL 972239. No post-cleanup confirmation analysis has been received by the Illinois EPA.

*Response – In accordance with FOST guidance, releases under 55 gallons need not be addressed.*

3. The FOST should be explicit that L6 Group 70 is a No Further Action Site in the November 1998 Record of Decision ( Table 6-3 ). Perhaps this is best placed under item 4. Of the draft

FOST.

*Response – the text has been revised to incorporate this information.*

4. I strongly recommend that Will County officials and the Army conduct a thorough 'walk through' inspection of the 455 acre parcel to make sure that statements in the FOST reflect current conditions, e.g. all friable asbestos containing materials have been removed from the parcel, out-of-service transformers and PCB containing equipment has been removed from the parcel, no recent spills, discharges, or releases have occurred, etc.

*Response – one multi-agency walk through has been conducted previously. The grantee has pre-conveyance access to the site.*

5. Under 3.10.2. I am unaware of any contamination of the Silurian dolomite aquifer beneath the 455 acre Will County parcel. Therefore, I do not know the reason for prohibiting the potable use of groundwater from this aquifer. There are elevated naturally occurring sulfate concentrations within this formation but I am not aware of any anthropogenic contamination. The Army and Will County should thoroughly review the groundwater quality for this area to determine if this prohibition is needed.

*Response – the text has been revised for clarity.*

From a practical standpoint, Will County could agree to the prohibition and drill and case a well through the Silurian dolomite into the Galena-Platteville formation which can yield more water of higher quality than the Silurian dolomite. Another alternative would be to extend a public water supply line to the site from the City of Wilmington or utilize an existing deep well at JAAP.

*Response – noted.*

6. Under LEAD-BASED PAINT WARNING AND COVENANT: (4) Residential habitation is also prohibited in the November 1998 Record of Decision.

*Response – the text has been revised to incorporate this information.*

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7. Under NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT: (a) I am unaware of any encapsulated friable ACM at JAAP. If there is encapsulated friable ACM, Will county should be fully advised of the location and condition of these materials.

*Response – the text has been revised for clarity.*

8. Under PCB CONTAINING EQUIPMENT NOTIFICATION: The first paragraph is contrary to the language appearing at 3.10.2, paragraph 3.

*Response – the text has been revised for clarity.*

9. I recommend that the Army, USEPA, Illinois EPA, and Will County officials meet to discuss the next draft of this FOST in order to expedite finalizing the FOST.

*Response – agreed.*

**USEPA Comments on the Draft Final Finding of Suitability to Transfer  
for the Will County Landfill Property  
(dated June 23, 1999)**

1. Page 4, Section 3.1 - Building 70-44 is listed twice under ECP Category 3.

*Response – the list has been corrected.*

2. Page 4, Section 3.2 - The last sentence does not make sense, and should be modified to state, "A summary of the buildings or areas in which hazardous substances were stored, released, or disposed is provided in Table 2 . . . ."

*Response – the sentence has been revised.*

3. Page 5, Section 3.3.2 - Modify the last sentence to read, "A summary of the sites where petroleum or petroleum products were stored is at Table 3 . . . ."

*Response – the sentence has been revised.*

4. Page 6, Section 3.6, first sentence - Remove the parentheses after "1978."

*Response – the typo has been corrected.*

5. Page 7, Section 3.10.1, paragraph 1, sentence 3 - Modify "endrin, kepone" to "endrin ketone." Also, it would be useful to add that concentrations were below the site Remediation Goals.

*Response – The sentence now reads "endrin ketone" as consistent with the PAS and RI. The*

*concentration meaning has been clarified.*

5. Page 7, Section 3.10.2, paragraph 2 - Remove the additional period found between the third and fourth sentences. Insert a period at the end of sentence 4, ending in, "... future land use scenario."

*Response – the typos have been corrected.*

6. Page 8, Section 4, paragraph 2, sentence 4 - This statement is inaccurate. The Record of Decision (ROD) delineated Limited Action for the groundwater remedy for groundwater remedial units (GRUs) 1, 2, and 3. The ROD identified the groundwater at site L6 as needing no further action. Make any necessary modifications.

*Response – the statement has been modified for clarity.*

7. Page 8, Section 4 - The text states the storm sewer and floor drains from Building 70-47 passed through grease interceptors. Clarify whether these interceptors were cleaned out.

*Response – the paragraph is reformatted for clarity.*

8. Page 8, Section 4, last sentence - Clarify if "these items" refer to the floor drains and oil/water separator at Building 70-2.

*Response – the paragraph is reformatted for clarity.*

10. Page 9, Section 7, sentence 4 - For consistency with sentence 2 of this paragraph, change "... included in the deed" to "... made a part of the deed."

*Response – The text has been revised.*

10. Table 3 - Correct "6,00 gal UST."

*Response – the typo has been corrected.*

11. Figure 1-4 - Change the identification of this figure to "Figure 1."

*Response – the figure is re-labeled.*

12. Plat of Survey - Identify this figure as "Figure 2."

*Response – the figure is re-labeled.*

14. Page 18, Enclosure 3, NPL Property - USEPA recommends modifying the third sentence to state, "The person or entity to whom the property is transferred agrees that the FFA, the JOAAP



ROD, or any amendment to them, or any subsequent ROD takes precedence over the terms of the property transfer should a conflict arise."

*Response – the sentence has been revised.*

14. Page 23, Enclosure 4, response to comment 5 - Please clarify in the response and in Section 3.4 that the transformer will be removed and properly disposed prior to the property transfer.

*Response – the transformer will be removed and disposed when no longer needed, but this may occur after the date of transfer.*

15. Page 25, Enclosure 4, response to comment #19 - USEPA continues to recommend including, "future owners, heirs, and executors" wherever the language, "the Grantee, its successors, and assigns" is used in Enclosures 3 and 6.

*Response – the revisions have been made.*

16. Page 26, Enclosure 4, response to comment #24 - No changes were made to the text in Enclosure 3 in response to the comment. USEPA recommends modifying the text as indicated in the original comment.

*Response – sentence 2 was previously revised per prior comment. Sentence 3 has been deleted.*

17. Page 37, Enclosure 6, B - USEPA recommends modifying the first sentence to state, "The Grantee, its successors, and assigns, future owners, heirs, and executors agree the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD take precedence over the terms of the Property transfer should a conflict arise."

*Response – the revision has been made.*

18. Page 37, Enclosure 6, B - USEPA recommends modifying the second sentence to state, "... should implementation of the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD interfere with their use of the property ...."

*Response – the revision has been made.*

19. Page 37, Enclosure 6, C - USEPA recommends modifying the second sentence to state, "... ROD or amendments thereto or any subsequent ROD ...."

*Response – the revision has been made.*

21. Page 37, Enclosure 6, D - USEPA recommends modifying the first sentence to state,

"... response activities undertaken pursuant to the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD, or CERCLA on the Property.

*Response – the revision has been made.*

22. Page 37, Enclosure 6, E - USEPA recommends modifying the first sentence to state, "... JOAAP ROD, or any amendments to them, or any subsequent ROD ...."

*Response – the revision has been made.*

23. Page 38, Enclosure 6, middle of page - The heading, "CERCLA Notification/Convenants" is missing.

*Response – the heading has been inserted.*

**ENCLOSURE 5: PUBLIC COMMENTS**

**Comments from Dean Olson and Donna Shehane, Will County Land Use Department,  
Waste Services Division.**

**WILL COUNTY LAND USE DEPARTMENT  
WASTE SERVICES DIVISION**

313 North Chicago Street Joliet, Illinois 60432

(815)727-8834 - fax(815)722-3410

March 17, 1999

Art Holz

Department of the Army

Joliet Army Ammunition Plant

29401 South Route 53

Wilmington, Illinois 60481-8879

CERTIFIED MAIL # Z 371 555 33

RETURN RECEIPT REQUESTED

Dear Mr. Holz:

After careful review by Will County, we are pleased to submit our comments concerning the February 1999, Draft FOST.

1. At various points in the draft FOST references are made both to the "Parcel" and to the "Property". The County feels that these should be reconciled and a consistent term should be used. It would seem that the term "Property" should be used as a term of specific reference to the Will County Landfill Parcel throughout the document.

*Response – this comment does not effect the FOST but changes have been made to improve clarity.*

2. The draft FOST proposes to include within the deed specific warnings and covenants for the asbestos and lead-based paint issues posed at the site. It would seem that such warnings and covenants should also be included within the deed concerning the substances and activities noted in Sections 3.2, 3.3; 3.4, 3.9 and 3.10 as well.

*Response – the conclusions reached in the FOST will be incorporated into the deed.*

3. Section 3.10.2 of the draft FOST now provides (in pertinent part) that "well drilling and use of groundwater from glacial till and Silurian Dolomite aquifer for

potable use will be prohibited." (Emphasis added). In the first instance, so long as water drawn from the Silurian Dolomite aquifer ultimately meets maximum contaminant levels as defined by the Safe Drinking Water Act, there should be no prohibition against use of this aquifer for potable (i.e., human ingestion/consumption) purposes.

*Response – the text has been edited to include this.*

With respect to the shallow groundwater aquifer from the glacial till there should be no prohibition against use of this water source in ways that do not result in human ingestion/consumption. As noted early on in the draft FOST, development of a landfill has been a use contemplated early on in this entire process and is a specific use contemplated by Public Law (PL 104-106). In turn, it is (and always has been) reasonably foreseeable that shallow aquifer water sources located upon the property would need to be used in connection with the development and operation of a landfill so long as that water is not used for human ingestion.

*Response – noted.*

4. The "No Liability for Non-Army Contamination" provisions of Enclosure Three (Environmental Protection Provisions) will need to be revised. Although the caption of that section makes clear that the controlling intent of this provision is to not make the Army liable for any subsequent "non-Army" contamination, in its present form, the provision does not read this way. In fact, the provision could be arguably construed (although the County disagrees with this construction) to provide that either the County and/or Waste Management of Illinois would be considered "responsible parties" (as defined by CERCLA) simply because of their status as subsequent operators or fee title owners of the Property. To reflect and mirror the true intent of this provision (and the true intent of PL 104-106), the County proposes that this provision be revised as follows:

"The Army shall not incur liability for additional response action or corrective action found to be necessary at the Property after the date of transfer thereof where such need for additional response or corrective action was proximately caused by the subsequent active conduct of another party not in contractual privity with the Army, an entirely new release of contaminants cause by the subsequent active conduct of another party not in contractual privity with the Army, or where a condition of contamination which existed prior to the date of transfer of the Property which did not previously require response and/or remedial action is materially exacerbated or aggravated by the post-transfer, subsequent active conduct of another party not in contractual privity with the Army". For purposes of this document, "contractual privity" shall be defined as a contractual relationship pertaining to the decommissioning and/or remediation of the JOAA-P as required by Public Law 104-106.

*Response – the current text is in accordance with guidance and suitable for the FOST.*

5. **GROUNDWATER RESTRICTION:**

A. Restrictions and Conditions - Again, the prohibition on access to or use of shallow groundwater

underlying the Property needs to be modified. Again, as indicated in the discussion above concerning Section 3.10.2, there is no reason that the shallow aquifer cannot be utilized for uses that are not related to long human contact, direct human ingestion, etc. of water from the shallow aquifer.

In addition, since the very essence of the transfer of the Property involved in this matter is to effectuate the construction and development of a landfill, obviously, in order to comport with both Federal Subtitle D regulations and companion state regulations, groundwater monitoring wells will have to be installed in the shallow aquifer. As such, the Grantee and/or its assigns (i.e., Waste Management of Illinois) will need to have "access" to the shallow groundwater.

In Section C below, (Army Access), the Army itself reserves the right to access the aquifer for the purpose of installing and operating the same type of groundwater monitoring wells, so deletion of this prohibition from Section A (to make Section A and C consistent) should not present a problem.

*Response – The text has been revised.*

#### **6. LEAD-BASED PAINT WARNING AND COVENANT:**

The first sentence of Subsection 3 of this section (pertaining to the recommendation that a risk assessment or inspection be conducted by the Transferee) should be deleted. This provision needs do no more than indicate that the Transferee has received the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint or lead-based paint hazards prior to completion of the transfer.

The last sentence of Section 4 of this provision (which proposes that the County agrees to be liable for response or any future remediation of lead-based paint found to be necessary on the property. . . ") should be stricken. There are many scenarios involving future possible demolition of buildings which may be undertaken by the County where the demolition debris that resulted therefrom may contain levels of lead (or other contaminants) which render land disposal of these materials impossible. In addition, there may be soils located directly adjacent to these buildings which could contain elevated levels of lead and/or other contamination which (under the last sentence of Subsection 4 as it now reads) would arguably be the responsibility of the County to remediate even though the clear intent of federal law is to place this obligation upon the United States.

Obviously, the clear language of PL 104-106 as well as Section 120 et seq. of CERCLA demonstrate that the United States (i.e., the Department of the Army) should remain responsible for any such events and remedial/response actions should they arise. Again, as such, this provision must be stricken from the Agreement.

The first sentence of Subsection 5 of this provision should be amended to read as follows:

The Army assumes no liability of remediation or damages for personal injury, illness, disability, or death, to the TRANSFEE, its successors and assigns, sublessees or to any

other person, including members of the general public, directly arising from or directly incident to the habitation, occupation, or use of any portion of improvements upon the Property containing lead-based paint.

For the reasons set forth in comments to Subsection 4 above, the last two sentences of Subsection 5 must also be deleted in their entirety.

*Response – the text is in accordance with policy and guidance and was not edited.*

### III. ENFORCEMENT

Section E of the Enforcement provisions of the deed restrictions should be revised to read as follows:

The Grantor and the State of Illinois shall be entitled to enforce the terms of this Deed by resort to specific performance or any other legal process. Should the Grantor prevail in action initiated to enforce the terms of this Deed, all reasonable costs and expenses of the Grantor, including, but not limited to attorneys' fees so incurred in any such enforcement action shall be borne by the Grantee or its successors in interest to the Property. All Remedies available hereunder shall be in addition to any and all other remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of the Grantor, and any forbearance, delay or omission to exercise its rights under this instrument in the event of a breach of any term of this Deed shall not be deemed to be a waiver by the Grantor of such term or of any subsequent breach of the same or any other term, or of any of the rights of the Grantor under this Deed.

*Response – the current text is in accordance with guidance and adequate for purposes of the FOST.*

### IV. (CERCLA REMEDIATION): Will need to be amended to read as follows:

B. The Grantee, its successors and assigns, agrees that should any conflict arise between the terms of the FFA and the JOAAP ROD as they presently exist or may be amended, and the provisions of this Property transfer, the terms of the FFA and ROD will take precedence. The Grantee, its successors and assigns, further agrees that notwithstanding any other provision of the Property transfer document, the Grantor assumes no liability to the Grantee, its successors and assigns, should implementation of the FFA or JOAAP ROD interfere in a non-negligent fashion with their use of the property; and said parties shall have no claim solely on account of any such non-negligent interference against the United States or any officer, agent, employee or contractor.

Nothing herein shall be construed as a waiver of any rights the Grantee, its successors and/or assigns might have by reason of law against the United States, its officers, agents, employees, assigns or contractors based upon their negligent conduct, acts, or omissions.

*Response – the text is in accordance with policy and guidance and was not revised.*

### 7. LAND USE RESTRICTIONS

The first sentence of Section II (Deed Restrictions) needs to be revised to add the words ... and related

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operation and administrative facilities." to the end of that sentence.

*Response – the property is characterized as industrial, which provides for administrative functions. The text was not revised.*

In addition to the above-listed concerns, there are several other concerns:

- a) If the liquidation action continues beyond the date of transfer to Will County, the County should be held harmless and should be indemnified by the Army/liquidation contractor.

*Response – noted.*

- b) Documentation that the proper remediation of the fuel oil spill which occurred in November of 1997 should be included in Table 3.

*Response – The incident has been remediated and do to its size is not reportable under FOST guidance.*

- c) Will County reserves the right to review and comment on the "regulatory comments" section of Enclosure Four before the final FOST is approved.

*Response – noted. The County is welcome to correspond with regulators.*

- d) The County requests that a copy of "The Finding of No Significant Impact" document dated November 20, 1997 be forwarded to the Waste Services Division.

*Response – the EA and FNSI are available for review at Bldg. 74-3, Joliet AAP.*

- e) The site map (Enclosure I/Figure 1) and the Plat of Survey (Figure 2) for the Will County landfill parcel will need to be verified by the County prior to signature of the final FOST.

*Response – noted.*

Thank you for the opportunity to comment on the draft FOST.

Sincerely,

Dean Olson, Waste Services Director  
Donna Shehane, Solid Waste Engineer

cc: Cyril Onewakoe, Bruce Friefeld, Phil Mock

**Enclosure 6- Deed Restrictions****JOAAP CERCLA ENVIRONMENTAL DEED RESTRICTIONS**

The following conditions, restrictions, and notifications shall be placed in the deed to ensure protection of human health and the environment and to preclude any interference with ongoing, completed, or future remediation activities at Joliet Army Ammunition Plant (JOAAP).

**I. PURPOSE AND INTENT:**

A. The entire property to be transferred to the Will County, Illinois (hereinafter "Grantee") as defined in the Grantor's Finding of Suitability to Transfer ("FOST") for JOAAP shall be referred to herein as "Property." In accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, the following deed restrictions shall form part of any deed or other agreement proposed to govern the transfer of Property which consists of approximately 455 acres in the south central portion of the Load-Assemble-Pack (LAP) Area. The parcel numbers of this proposed transfer include L114 and all but the southernmost portion of L6. The proposed transfer includes 28 buildings/structures. A listing of the buildings/structures is at Table 1. Currently, the only occupied buildings are the electrical substations (Buildings 22-1, -2, and -3). A site map of the proposed property to be transferred is at Enclosure 1. Figure 2 is a "Plat of Survey for the Will County Landfill at the Joliet Arsenal" Parcel 1.

**II. DEED RESTRICTIONS:**

The Department of the Army has undertaken careful environmental study of the Property and concluded, to which Grantee agrees that the Property is limited by its environmental condition to its intended use as a landfill. In order to protect human health and the environment and further the common environmental objectives and land use plan of the Joliet Arsenal Citizens Planning Commission as subsequently adopted by the Illinois Land Conservation Act of 1995, P.L. 104-106, these deed restrictions are included to assure the use of the Property is consistent with the environmental condition of the Property.

**Land Use Restrictions:**

The Property has been remediated as stated in the ROD by the Grantor solely for use as a landfill. Pursuant to this deed restriction, the Property may only be developed and utilized for landfill purposes. The Grantee covenants for itself, its successors, and assigns not to develop or use the Property for residential purposes, the Property having been remediated only for use as landfill. The Grantee further covenants not to use the



groundwater from the shallow aquifers as described in § B-1 below for residential purposes.

III.

A. The above land use restrictions shall be to the benefit of the public in general and adjacent land, including land retained by the United States, and therefore, are enforceable by the United States Government. These restrictions are binding on the Grantee, its successors and assigns, future owners, heirs and executors, and shall run with the land

B. The Grantee covenants for itself, its successors, and assigns that it shall include the above land use restrictions in all subsequent lease, transfer or conveyance documents relating to the Property subject hereto. Notwithstanding this provision, failure to include these land use restrictions in subsequent conveyances does not abrogate the status of these restrictions as binding upon the parties, their successors, and assigns.

C. The Grantee for itself, its successors, and assigns covenants that it shall not undertake or allow any activity on or use of the Property that would violate the land use restrictions contained herein.

D. Notwithstanding any other provision of the Deed, any agreement between the Grantee and the Grantor, the Grantee on behalf of itself, its successors and assigns, future owners, heirs and executors covenants and agrees that the Grantee or the responsible future owner of the Property shall be fully responsible for any investigation and/or remediation of hazardous substances, pollutants or contaminants, or petroleum or petroleum derivatives, to the extent that such investigation and/or remediation results from a violation of the land use and groundwater restrictions set forth at § II above.

E. The Grantor and the State of Illinois shall be entitled to enforce the terms of this Deed by resort to specific performance or any other legal process. All reasonable costs and expenses of the Grantor, including, but not limited to attorneys' fees, incurred in any such enforcement action shall be borne by the Grantee or its successors in interest to the Property. All Remedies available hereunder shall be in addition to any and all other remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of the Grantor, and any forbearance, delay or omission to exercise its rights under this instrument in the event of a breach of any term of this Deed shall not be deemed to be a waiver by the Grantor of such term or of any subsequent breach of the same or any other term, or of any of the rights of the Grantor under this Deed.

### III. CERCLA REMEDIATION:

A. The Grantor acknowledges that JOAAP has been identified as a National Priorities

List (NPL) site under CERCLA, as amended. The Grantee acknowledges that the Grantor has provided it with a copy of the JOAAP Federal Facility Agreement (FFA) dated June 1989 and the JOAAP ROD and shall provide the Grantee with a copy of any amendments thereto.

B. The Grantee, its successors and assigns, future owners, heirs and executors, future owners, heirs, and executors agree that the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD take precedence over the terms of the Property transfer should a conflict arise. The Grantee, its successors and assigns, future owners, heirs and executors, further agrees that notwithstanding any other provision of the Property transfer document, the Grantor assumes no liability to the Grantee, its successors and assigns, future owners, heirs and executors, should implementation of the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD interfere with their use of the property; and said parties shall have no claim on account of any such interference against the United States or any officer, agent, employee or contractor.

C. The Grantee, its successors and assigns, future owners, heirs and executors shall not undertake activities on the Property that would interfere with or impede the completion of the CERCLA clean up at the JOAAP NPL site. The Grantee, its successors and assigns, future owners, heirs and executors shall comply with any institutional controls established or put in place by the Grantor relating to the Property which are required by the JOAAP ROD or amendments thereto or any subsequent ROD issued before or after the date of this Deed.

D. All subsequent conveyances of the Property or any interests therein, by Grantee, its successors and assigns, future owners, heirs and executors, shall be expressly subject to the rights and duties of the Grantor to continue operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD, or amendments thereto, or CERCLA on the property. The Grantee, its successors and assigns, future owners, heirs and executors, shall provide:

(i) Pre-transfer Notice - 30 days written notice prior to any such conveyance (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities) to the Grantor, EPA, and IEPA and;

(ii) Deed/lease - Within 14 days after the effective date of the transaction, Grantee, its successors and assigns, future owners, heirs and executors, shall provide to the Grantor, EPA, and IEPA, copies of the deed, lease, or other conveying instrument evidencing such transaction.

E. The Grantor reserves for itself and its representatives, the USEPA and the IEPA and their representatives, an easement and unrestricted right of access to the Property in any case in which the Grantor or the above named regulators are obligated or required to undertake any additional environmental investigation, inspection, enforcement, monitoring, sampling, testing, remedial action, corrective action, or any other action necessary for the Grantor or the named regulators to meet their environmental responsibilities as provided for in this Deed, the JOAAP FFA, the JOAAP ROD, or any amendments to them, or any subsequent RODs, or other applicable environmental laws and regulations. This reservation includes the right to access and use of utilities on the Property at reasonable cost to the United States. In exercising this right of

access, except in case of imminent endangerment to human health or the environment, the Grantor shall give the Grantee, or the then record owner, reasonable notice of actions to be taken on the Property and shall use reasonable means, without significant additional cost to the Grantor, to avoid or minimize interference with the use of the Property. This easement and right of access shall be binding on the Grantee, its successors and assigns, future owners, heirs and executors and shall run with the land. The Grantee, its successors and assigns, future owners, heirs and executors shall include the provisions of this Section in all subsequent leases, transfer, or conveyance documents relating to the Property or any portion thereof.

F. Except as otherwise provided by law, including, but not limited to, CERCLA and the Illinois Land Conservation Act of 1995, P.L. 104-106, the Grantor shall not incur liability for additional response action or corrective action found to be necessary after the date of transfer unless such release or such newly discovered substance was due to Grantor's activities, ownership, use or occupation of the Property, or the activities of Grantor's contractors and/or agents.

#### IV. CERCLA NOTIFICATION/COVENANTS

Pursuant to Section 120(h)(3) of CERCLA as amended, 42 U.S.C. Section 9601 et seq:

A. NOTICE. The Grantor hereby notifies the Grantee of the storage, release, and disposal of hazardous substances on the Property. For the purpose of this Deed, "hazardous substances" shall have the same meaning as Section 101(14) of CERCLA. Available information regarding the storage, release, and disposal of hazardous substances and the action taken will be attached to the Deed. More detailed information regarding the storage, release, and disposal of hazardous substances on the Property has been provided to the Grantee in the "Enhanced Preliminary Assessment Screening" (EPAS), Land Transfer to Will County for Future Landfill, JOAAP, dated June 1997, the receipt of which the Grantee hereby acknowledges.

B. COVENANT. The Grantor hereby covenants that:

(1) all remedial action necessary to protect human health and the environment with respect to any such hazardous substances remaining on the Property as of the date of this conveyance has been taken; and

(2) any additional remedial action found to be necessary with regard to such hazardous substances remaining on the Property as of the date of this conveyance shall be conducted by the Grantor. The covenant in this Subsection [B(2)] shall not apply in any case in which the person or entity to whom the Property is transferred is a potentially responsible party under CERCLA with respect to the Property.

#### V. NOTICES

Any notice, demand, request, consent, approval, or communication that either party desires or is required to give to the other shall be in writing and shall either be served personally or sent by

mail, postage prepaid, addressed as follows:

GRANTOR

United States of America  
Department of the Army  
HQ, IOC  
Rock Island, IL 61299-6000

US EPA Region 5  
Joliet AAP Site Manager  
Superfund Division  
77 W. Jackson Blvd.  
Chicago, IL 60604

GRANTEE

Will County  
Land Use Dept.  
313 N Chicago St.  
Joliet, IL 60432

IL EPA  
Joliet AAP Project Manager  
Bureau of Land  
1021 N. Grand Ave. E.  
Springfield, IL 62794-9276

**ENCLOSURE 7: ENVIRONMENTAL PROTECTION AND DEED PROVISIONS**

The following conditions, restrictions, and notifications, or substantially equivalent provisions, will be placed in the deed to ensure protection of human health and the environment and to preclude any interference with ongoing, completed, or future remediation activities at Joliet Army Ammunition Plant (JOAAP).

**1. INCLUSION OF PROVISIONS:** The person or entity to whom the property is transferred shall neither transfer the property, lease the property, nor grant any interest, privilege, or license whatsoever in connection with the property without the inclusion of the environmental protection provisions contained herein, and shall require the inclusion of such environmental protection provisions in all further deeds, transfers, leases, or grant of any interest, privilege, or license.

**2. NPL PROPERTY AND CERCLA REMEDIATION:**

A. The Grantor acknowledges that JOAAP has been identified as a National Priorities List (NPL) site under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended. The Grantee acknowledges that the Grantor has provided it with a copy of the JOAAP Federal Facility Agreement (FFA), entered into by the United States Environmental Protection Agency (EPA), Region 5, the State of Illinois, and the Department of the Army, dated June 1989 and the JOAAP Record of Decision (ROD) and shall provide the Grantee with a copy of any amendments thereto.

B. The Grantee, its successors and assigns, future owners, heirs and executors agree that the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD take precedence over the terms of the Property transfer should a conflict arise. The Grantee, its successors and assigns, future owners, heirs and executors, further agrees that notwithstanding any other provision of the Property transfer document, the Grantor assumes no liability to the Grantee, its successors and assigns, future owners, heirs and executors, should implementation of the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD interfere with their use of the property; and said parties shall have no claim on account of any such interference against the United States or any officer, agent, employee or contractor.

C. The Grantee, its successors and assigns, future owners, heirs and executors shall not undertake activities on the Property that would interfere with or impede the completion of the CERCLA remediation at the JOAAP NPL site. The Grantee, its successors and assigns, future owners, heirs and executors shall comply with any institutional controls established or put in place by the Grantor relating to the Property which are required by the JOAAP ROD or amendments thereto or any subsequent ROD issued before or after the date of this Deed.

D. All subsequent conveyances of the Property or any interests therein, by Grantee, its successors and assigns, future owners, heirs and executors, shall be expressly subject to the rights and duties of the Grantor to continue operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to the FFA, the JOAAP ROD, or any amendments to them, or any subsequent ROD, or amendments thereto, or CERCLA on the property. The Grantee, its successors

and assigns, future owners, heirs and executors, shall provide:

(i) Pre-transfer Notice - 30 days written notice prior to any such conveyance (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities) to the Grantor, EPA, and IEPA and;

(ii) Deed/lease - Within 14 days after the effective date of the transaction, Grantee, its successors and assigns, future owners, heirs and executors, shall provide to the Grantor, EPA, and IEPA, copies of the deed, lease, or other conveying instrument evidencing such transaction.

E. The Grantor reserves for itself and its representatives, the USEPA and the IEPA and their representatives, an easement and unrestricted right of access to the Property in any case in which the Grantor or the above named regulators are obligated or required to undertake any additional environmental investigation, inspection, enforcement, monitoring, sampling, testing, remedial action, corrective action, or any other action necessary for the Grantor or the named regulators to meet their environmental responsibilities as provided for in this Deed, the JOAAP FFA, the JOAAP ROD, or any amendments to them, or any subsequent RODs, or other applicable environmental laws and regulations. This reservation includes the right to access and use of utilities on the Property at reasonable cost to the United States. In exercising this right of access, except in case of imminent endangerment to human health or the environment, the Grantor shall give the Grantee, or the then record owner, reasonable notice of actions to be taken on the Property and shall use reasonable means, without significant additional cost to the Grantor, to avoid or minimize interference with the use of the Property. This easement and right of access shall be binding on the Grantee, its successors and assigns, future owners, heirs and executors and shall run with the land. The Grantee, its successors and assigns, future owners, heirs and executors shall include the provisions of this Section in all subsequent leases, transfer, or conveyance documents relating to the Property or any portion thereof.

F. Except as otherwise provided by law, including, but not limited to, CERCLA and the Illinois Land Conservation Act of 1995, P.L. 104-106, the Grantor shall not incur liability for additional response action or corrective action found to be necessary after the date of transfer unless such release or such newly discovered substance was due to Grantor's activities, ownership, use or occupation of the Property, or the activities of Grantor's contractors and/or agents.

### **3. LAND USE AND GROUNDWATER RESTRICTIONS:**

#### **A. PURPOSE AND INTENT:**

The entire property to be transferred to the Will County, Illinois (hereinafter "Grantee") as defined in the Grantor's Finding of Suitability to Transfer ("FOST") for JOAAP shall be referred to herein as "Property." In accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, the following deed restrictions shall form part of any deed or other agreement proposed to govern the transfer of Property which consists of approximately 455 acres in the south central portion of the Load-Assemble-Pack (LAP) Area. The parcel numbers of this proposed transfer include L114 and all but the southernmost portion of L6.

**B. DEED RESTRICTIONS:**

The Department of the Army has undertaken careful environmental study of the Property and concluded, to which the Grantee agrees, that the Property is limited by its environmental condition to its intended use as a landfill. In order to protect human health and the environment and further the common environmental objectives and land use plan of the Joliet Arsenal Citizens Planning Commission as subsequently adopted by the Illinois Land Conservation Act of 1995, P.L. 104-106, these deed restrictions are included to assure the use of the Property is consistent with the environmental condition of the Property.

**Land Use Restriction:**

The Property has been remediated as stated in the Record of Decision (ROD) by the Grantor solely for use as a landfill. Pursuant to this deed restriction, the Property may only be developed and utilized for landfill purposes. The Grantee covenants for itself, its successors, and assigns not to develop or use the Property for residential purposes, the Property having been remediated only for use as landfill.

**Groundwater Use Restriction:**

The Grantee further covenants not to use the groundwater from the shallow aquifers for residential purposes.

**C. CONDITIONS:**

1. The Grantee covenants for itself, its successors, and assigns that it shall include the above land use and groundwater use restrictions in all subsequent lease, transfer or conveyance documents relating to the Property subject hereto. Notwithstanding this provision, failure to include these land use restrictions in subsequent conveyances does not abrogate the status of these restrictions as binding upon the parties, their successors, and assigns.
2. The Grantee for itself, its successors, and assigns covenants that it shall not undertake or allow any activity on or use of the Property that would violate the land use and groundwater use restrictions contained herein.
3. Notwithstanding any other provision of the Deed, any agreement between the Grantee and the Grantor, the Grantee on behalf of itself, its successors and assigns, future owners, heirs and executors covenants and agrees that the Grantee or the responsible future owner of the Property shall be fully responsible for any investigation and/or remediation of hazardous substances, pollutants or contaminants, or petroleum or petroleum derivatives, to the extent that such investigation and/or remediation results from a violation of the land use and groundwater use restrictions set forth at B above.

**D. ENFORCEMENT:**

1. The above land use restrictions shall be to the benefit of the public in general and adjacent land, including land retained by the United States, and therefore, are enforceable by the United States Government. These restrictions are binding on the Grantee, its successors and assigns, future owners, heirs and executors, and shall run with the land

2. The Grantor and the State of Illinois shall be entitled to enforce the terms of this Deed by resort to specific performance or any other legal process. All reasonable costs and expenses of the Grantor, including, but not limited to attorneys' fees, incurred in any such enforcement action shall be borne by the Grantee or its successors in interest to the Property. All Remedies available hereunder shall be in addition to any and all other remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of the Grantor, and any forbearance, delay or omission to exercise its rights under this instrument in the event of a breach of any term of this Deed shall not be deemed to be a waiver by the Grantor of such term or of any subsequent breach of the same or any other term, or of any of the rights of the Grantor under this Deed.

**4. LEAD-BASED PAINT WARNING AND COVENANT:**

\*Note – the property is not intended for residential use, per P.L. 104-106, and residential use is prohibited by the JOAAP Record of Decision, dated October 1998.

(1) The Property does not contain structures or buildings suitable for residential dwellings. The GRANTEE, and its successors and assigns, future owners, heirs and executors, is hereby informed and does acknowledge that all buildings on the property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Lead exposure is especially harmful to young children and pregnant women. Such property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including learning disabilities, reduced intelligence quotient, behavioral problems and impaired memory.

(2) Available information concerning known lead-based paint and/or lead-based paint hazards, the location of lead-based paint and/or lead-based paint hazards, and the condition of painted surfaces is contained in the Environmental Baseline Survey, which has been provided to the GRANTEE. Additionally, the Finding of Suitability to Transfer (FOST) has been provided to the GRANTEE. The GRANTEE has been provided with a copy of the federally approved pamphlet on lead poisoning prevention. The GRANTEE hereby acknowledges receipt of all of the information described in this paragraph.



(3) A risk assessment or inspection by the TRANSEREE, its successors and assigns, future owners, heirs and executors, for possible lead-based paint hazards is recommended prior to the transfer of the Property. The GRANTEE, its successors and assigns, future owners, heirs and executors, acknowledge that they have received the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards prior to execution of the transfer.

(4) The GRANTEE, its successors and assigns, future owners, heirs and executors, shall comply with all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. The GRANTEE shall not permit use of any buildings or structures on the Property for residential habitation without: (i) inspecting for the presence of lead-based paint and/or lead-based paint hazards; (ii) abating and eliminating lead-based hazards as required by and in accordance with all applicable laws and regulations; and (iii) complying with the notice and disclosure requirements under applicable Federal and state law. The GRANTEE agrees to be responsible for any future remediation of lead-based paint found to be necessary on the Property.

(5) The Army assumes no liability for remediation or damages for personal injury, illness, disability, or death, to the GRANTEE, its successors and assigns, future owners, heirs and executors, sublessees or to any other person, including members of the general public, arising from or incident to possession and/or use of any portion of the Property containing lead-based paint. The GRANTEE, its successors and assigns, future owners, heirs and executors, further agrees to indemnify and hold harmless the Army, its officers, agents and employees, from and against all suits, claims, demands or actions liabilities, judgments, costs and attorneys' fees arising out of, or in any manner predicated upon, personal injury, death or property damage resulting from, related to, caused by or arising out of the possession and/or use of any portion of the Property containing lead-based paint. The obligation of the GRANTEE, its successors and assigns, future owners, heirs and executors, shall apply whenever the United States incurs costs or liabilities for actions giving rise to liability under this section.

##### 5. NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT:

a. The GRANTEE is hereby informed and does acknowledge that friable and non-friable asbestos or asbestos-containing materials ("ACM") have been found on the Property, as described in the final base-wide EBS. The ACM on the property does not currently pose a threat to human health or the environment. All friable asbestos that posed a risk to human health has removed.

b. The GRANTEE covenants and agrees that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos; and that the Army assumes no liability for future remediation of asbestos or damages for personal injury, illness, disability, or death, to the GRANTEE, its successors or assigns, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the Property, whether the GRANTEE, its successors or assigns have properly warned

or failed to properly warn the individual(s) injured. The GRANTEE agrees to be responsible for any future remediation of asbestos found to be necessary on the Property.

c. Unprotected or unregulated exposures to asbestos in product manufacturing, shipyard, building construction workplaces have been associated with asbestos-related diseases. Both the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) regulate asbestos because of the potential hazards associated with exposure to airborne asbestos fibers

d. The GRANTEE acknowledges that it has inspected the property as to its asbestos content and condition and any hazardous or environmental conditions relating thereto. The GRANTEE shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the property, including, without limitation, any asbestos hazards or concerns.

e. No warranties either express or implied, are given with regard to the condition of the property, including, without limitation, whether the property does or does not contain asbestos or is or is not safe for a particular purpose. The failure of the GRANTEE to inspect, or to be fully informed as to the condition of all or any portion of the property offered, will not constitute grounds for any claim or demand against the United States.

## 6. PCB CONTAINING EQUIPMENT NOTIFICATION

The GRANTEE is hereby informed and does acknowledge that equipment containing Polychlorinated Biphenyls (PCBs) exists on the Property to be conveyed, as listed in Section 3.4 of the FOST document. All PCB containing equipment has been properly labeled in accordance with applicable law and regulation to provide notification to future users. Any PCB contamination or spills related to such equipment has been properly remediated prior to conveyance. The PCB equipment does not currently pose a threat to human health or the environment.

Upon request, the army agrees to furnish to the GRANTEE any and all records in its possession related to such PCB equipment necessary for the continued compliance by the GRANTEE with applicable laws and regulations related to the use and storage of PCBs or PCB containing equipment.

The GRANTEE covenants and agrees that its continued possession, use and management of any PCB containing equipment will be in compliance with all applicable laws relating to PCBs and PCB containing equipment, and that the Army assumes no liability for the future remediation of PCB contamination or damages for resonant injury, illness, disability, or death to the GRANTEE, its successors or assigns, or to any other person, including members of the general public arising from or incident to contact of any kind whatsoever with PCBs or PCB containing equipment, whether the GRANTEE, its successors or assigns have properly warned or failed to properly warn the individual(s) injured. The GRANTEE agrees to be responsible for any future remediation of PCBs or PCB containing equipment found to be necessary on the Property.

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## **7. NOTICE OF THE POTENTIAL FOR THE PRESENCE OF UNEXPLODED ORDNANCE OR EXPLOSIVES**

Ordnance and explosive (OE) investigations indicate that OE is not likely to be located on this property. However, because this is a former military installation with a history of OE manufacturing and assembly, there is a slight potential for OE to be present on the property. In the event the GRANTEE, its successor, and assigns, should discover items or material which appears to be of an ordnance or explosive nature on the Property, the GRANTEE shall not attempt to remove or destroy such items, will immediately stop any excavation or other work in the area, and notify the local Police Department and the nearest Department of the Army Explosive Ordnance Detachment. The Army acknowledges its responsibility for OE/UXO and agrees to take prompt, appropriate action to respond to any OE/UXO hazard upon notification of discovery.

302 N. Chicago Street  
Joliet, Illinois 60432



(815) 740-4601  
Fax (815) 740-4600

**JOSEPH L. MIKAN**  
*Will County Executive*

December 20, 2001

VIA FEDERAL EXPRESS OVERNITE

U.S. Army Corp of Engineers  
Louisville District  
Mr. Michael Barter, Chief  
RE Division  
Attention: RE-M  
600 Martin Luther King Drive, Room 137  
Louisville, KY 40202

Re: Signed Quit Claim Deed for Will County Landfill

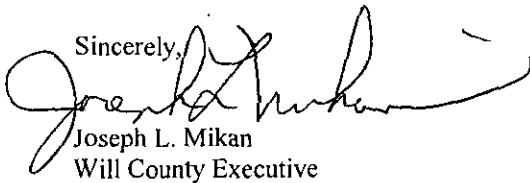
Dear Mr. Barter:

Enclosed please find four signed copies of a "Quit Claim Deed of Conveyance with Land Use Restrictions and Covenants and Groundwater Restrictions and Covenants" for a parcel of land that will be used as a landfill by Will County, Illinois at the Joliet Army & Ammunition Plant (JAAP) site. Please return three signed copies, and keep one copy for your files.

As you know, Will County has planned for a long period of time to be in a position to accept this land from the federal government. The County is very appreciative of receiving this land. It is important to note that the landfill will benefit not only Will County, but the federal government as well. As indicated in the deed, the United States Forest Service, United States Army and the Veteran's Cemetery will all benefit by having a free disposal option for their waste as long as the landfill is open. Therefore, the sooner the landfill is operational, the earlier these organizations can take advantage of this huge economic benefit. Of course, the County will also benefit as our residents will pay less for their waste disposal, and important solid waste programs will be allowed to continue.

**It is important to note that the landfill project will not be officially started until the landfill deed is signed by the Secretary of the Army and returned to Will County.** This is because the Illinois Environmental Protection Agency will not accept our application for development of the landfill until Will County is "officially" the owner of the land. Therefore, I would greatly appreciate your organization's prompt attention to having the enclosed copies of the deed signed and returned by the Secretary of the Army as soon as possible. Please contact Bruce Friefeld at (815) 740-8371 or Dean Olson at (815) 774-7891 of my staff, should you have any questions or concerns. Thank you in advance to your prompt attention to this matter.

Sincerely,

  
Joseph L. Mikan  
Will County Executive

**Attachment**

Cc: Cathy Hall  
Real Estate Division  
United States Department of the Army

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ENCLOSURE



**CenterPoint Properties**

---

1808 Swift Drive  
Oak Brook, Illinois 60523-1501  
630.586.8000 telephone  
630.586.8010 facsimile  
[www.CenterPoint-Prop.com](http://www.CenterPoint-Prop.com)

August 30, 2004

Via FedEx

Arthur M. Holz  
Joliet Army Ammunition Plant  
29401 State Route 53  
Wilmington, IL 60481-8879

**Re: CenterPoint/Deer Run Industrial Park Annual Report**

Dear Art:

Pursuant to Section 9.04 of the August 2, 2000 Memorandum of Agreement ("MOA") between the Army and the Joliet Arsenal Development Authority ("JADA"), JADA committed to "execute an annual report ... outlining the progress on the Redevelopment over the prior year and stat[ing] that, to the best of JADA's knowledge, it has not violated any of the deed restrictions or covenants set forth in the Initial Deed (or Future Deeds if such be the case)." As CenterPoint Properties Trust is the successor to JADA under Section 9.04 of the MOA, I submit this letter as the fourth such Annual Report.

First, to the best of CenterPoint's knowledge, CenterPoint has not violated any of the deed restrictions of covenants set forth in the Initial Deed of the Future Deeds.

Second, there is less activity to discuss this year, as the overwhelming majority of the development work is complete. There are still important tasks to be addressed, as discussed below, but overall the project is unfolding according to plan and we are on track with our projections of launching 1.5 to 2 MM sf of commercial/industrial space per year. Even excluding the BNSF facility, approximately 60% of the industrial park is committed to various commercial and industrial tenants with 2.5 MM sf already occupied. The BNSF's intermodal facility has been open and operating since September 2002, and the BNSF is continuing the process of developing its facility: among other things, they are planning to add another 20,000 linear feet of industrial strip track (two more full tracks).

## **Attachment 34**

Reference Document 3

QUIT CLAIM DEED OF CONVEYANCE  
WITH LAND USE RESTRICTIONS AND  
COVENANTS AND MONITORING WELL  
RESTRICTIONS AND COVENANTS  
JOLIET ARMY AMMUNITION PLANT  
WILL COUNTY, ILLINOIS

LAURIE MCPHILLIPS 32P R 2005064066  
Will County Recorder Page 1 of 32



CAK Date 04/19/2005 Time 10:09:39  
Recording Fees: 46.00

Exempt under provisions of Paragraph B, Section 4,  
Real Estate Transfer Tax Act.

3/25/05  
Date

[Signature]  
Buyer, Seller or Representative

This QUIT CLAIM DEED OF CONVEYANCE (hereinafter "Deed") is made and entered into by and between the UNITED STATES OF AMERICA (the "GRANTOR"), acting by and through the Deputy Assistant Secretary of the Army (I & H) pursuant to a delegation of authority from the SECRETARY OF THE ARMY (the "Army"), under and pursuant to the powers and authorities contained in the provisions of Section 2923 of the National Defense Authorization Act For Fiscal Year 1996, Public Law No. 104-106, Division B, Title XXIX, Subtitle B, Section 2901 et. seq., approved February 10, 1996 (the "Federal Act") C/O Commander and District Engineer, United States Army Corps of Engineers, Louisville District, ATTN: CELRL-RE-M, P.O. Box 59, Louisville, Kentucky 40201-0059, and THE JOLIET ARSENAL DEVELOPMENT AUTHORITY, Designee of the State of Illinois, and acting as the Agent of the State of Illinois for the purpose of accepting title to this real estate, C/O Mr. Richard A. Kwasneski, Executive Director, Joliet Arsenal Development Authority, Two Rialto Square, 116 North Chicago Street, Suite 201, Joliet, Illinois 60432 (the "GRANTEE").

WITNESSETH THAT:

NOW THEREFORE, the GRANTOR, for and in consideration as set forth in Article I of this Deed, does hereby REMISE, RELEASE AND FOREVER QUITCLAIM unto the GRANTEE, its successors and assigns, all its right, title and interest in the following described property consisting of four (4) tracts of real estate located in Will County, Illinois, being more particularly described in Exhibit A, which is attached hereto and incorporated herein. These four tracts are defined as "Group 6" (Tract No. 1), consisting of 110 acres, "Group 7" (Tract No. 2), consisting of 100 acres, "Agricultural Tract 57" (Tract No. 3), consisting of approximately 55 acres, and "Test Site" (Tract No. 4), consisting of approximately 39 acres. These tracts shall be collectively referred to herein as the "Property". Maps of the subject property are attached hereto as Exhibit B.

1 10732 of

SUBJECT TO all valid and existing restrictions, reservations, covenants, conditions, and easements, including but not limited to rights-of-way for highways, pipelines, and public utilities, if any, whether of public record or not.

TO HAVE AND TO HOLD the property granted herein to the GRANTEE and its successors and assigns, together with all and singular the appurtenances thereunto belonging or in anywise appertaining, and all the estate, right, title, interest, or claim whatsoever of the GRANTOR, either in law or in equity and subject to the terms, reservations, restrictions, covenants, and conditions set forth in this Deed.

Consistent with this Deed, Grantor and Grantee have entered into a Memorandum of Agreement (hereinafter "MOA"), which was attached as Exhibit "A" to the Quit Claim Deed of Conveyance dated August 2, 2000 and which was recorded as Document No. R2000086264 on August 11, 2000 in the Will County Recorder's Office. The MOA is incorporated herein by reference. The MOA sets forth additional rights and responsibilities of the parties to the MOA with respect to the Property and other real estate, and further addresses the parallel activities of remediating a portion of the site in a manner consistent with law while allowing the Property to be redeveloped subject, however, to the Non-Reverter provisions of this Deed.

AND IT IS FURTHER AGREED AND UNDERSTOOD by and between the parties hereto that the GRANTEE, by its acceptance of this Deed, agrees that, as part of the consideration for this Deed, the GRANTEE covenants and agrees for itself, its successors and assigns, forever, that this Deed is made and accepted upon each of the following covenants which covenants shall be binding upon and enforceable against the GRANTEE, its successors and assigns, in perpetuity, and the notices, covenants, and restrictions set forth below are a binding servitude on the Property herein conveyed and shall be deemed to run with the land in perpetuity.

#### **DEFERRED PAYMENT AND INTERIM LEASING BY GRANTEE:**

Subject to the terms and conditions as set forth in Sections A, B, and C of this Article, and in accordance with the Federal Act, the monetary consideration to be paid by Grantee on behalf of the State of Illinois for the conveyance of the Property to Grantee (the "Conveyance Consideration") shall be FIVE HUNDRED FIFTY-FIVE THOUSAND FIFTY-TWO DOLLARS AND NINETY-NINE (\$555,052.99), (the "Conveyance Consideration") which reflects the fair market value of the Property as of the date of delivery, acceptance, and recording of this Deed (the "Conveyance Date").

The subject consideration shall be paid as follows:

A. **PAYMENT OF CONVEYANCE CONSIDERATION DEFERRED FOR A TWENTY (20) YEAR PERIOD:** Subject to the terms and conditions as set forth in Sections B and C of this Article, the Conveyance Consideration shall be paid to Grantor twenty (20) years after the Conveyance Date.



B. PAYMENT OF CURRENT FAIR MARKET VALUE, EXCLUDING THE VALUE OF ANY IMPROVEMENTS, FOR THE RECONVEYANCE OF ALL OR A PART OF THE PROPERTY DURING THE TWENTY (20) YEAR PERIOD OF DEFERRED PAYMENT: In the event Grantee acting on behalf of the State of Illinois conveys all or a part of the Property, other than to the State of Illinois (including its agencies, branches and political subdivisions)(a "Reconveyance") during the twenty (20) year period of deferred payment (reference Section A), Grantee shall pay to Grantor an amount equal to the fair market value excluding improvements of that portion of the Property reconveyed (fair market value determined as of the date of such Reconveyance in the manner provided below in this Section B, the "Reconveyance Consideration"). However, if such a Reconveyance occurs within thirty (30) days of the Conveyance Date the Reconveyance Consideration applicable to the portion of the Property reconveyed shall be based on the Conveyance Consideration, prorated on a per acre basis. As an alternative to making an immediate payment to Grantor, if Reconveyance occurs within two years of the Conveyance Date, Grantee may defer payment of the Reconveyance Consideration applicable to the portion of the Property reconveyed for up to two years after the date of such Reconveyance. If Grantee so elects to defer payment, then (i) in addition to payment of the applicable Reconveyance Consideration, Grantee shall pay to Grantor interest on a monthly basis (based upon the prevailing interest rate for the ten (10) year U.S. Treasuries maturities as published in the Wall Street Journal plus 1-1/2 percentage points rounded to the nearest 1/8<sup>th</sup> percent) on the principal amount of the Reconveyance Consideration so deferred, with any interest that is not paid when due being added to outstanding principal, and (ii) the Reconveyance Consideration, together with all accrued but unpaid interest thereon, shall be paid on or before the date that is two years after the date of applicable Reconveyance.

The Reconveyance Consideration for the portion of the Property subject to a Reconveyance will be based upon the fair market value of such portion of the Property and will be determined by the Secretary of the Army in accordance with federal appraisal standards. In making his decision, the Secretary will consider an appraisal conducted by a certified land appraiser agreed to by Grantor and Grantee. Grantee shall pay the cost of the appraisal. The fair market value of such portion of the Property shall exclude the value of any improvements made thereto since the Conveyance Date by or on behalf of Grantee.

The monetary consideration to be paid for those portions of the Property, not reconveyed as described above shall be the Conveyance Consideration allocated on a per acre basis.

C. POTENTIAL PAYMENT OF CURRENT FAIR MARKET VALUE, EXCLUDING THE VALUE OF ANY IMPROVEMENTS, UPON LEASING OF ALL OR A PART OF THE PROPERTY DURING THE TWENTY (20) YEAR PERIOD OF DEFERRED PAYMENT: In the event Grantee leases all or a part of the Property during the twenty (20) year period of deferred payment (reference Section A.), other than to the State of Illinois (including its agencies, branches and political subdivisions), Grantor shall have the right to treat the lease as a Reconveyance if the Secretary of the Army determines that the referenced transaction is being used to avoid the application of the

payment provisions as set forth in Section B. of this Article. Should the Secretary of the Army determine that the referenced transaction is being used to avoid the application of payment provisions as set forth in Section B. of this Article, Grantee shall pay to Grantor an amount equal to the fair market value of the demised premises as of the date of the execution and delivery of the lease. The Secretary of the Army shall determine fair market value in accordance with federal appraisal standards. In making his decision, the Secretary will consider an appraisal conducted by a certified land appraiser agreed to by Grantor and Grantee. Grantee shall pay the cost of the appraisal. The fair market value of the demised Property shall exclude the value of any improvements made thereto since the Conveyance Date by or on behalf of Grantee.

The monetary consideration to be paid for those portions of the Property, not demised by Grantee shall be the Conveyance Consideration allocated on a per acre basis.

#### **"AS IS" AND "WHERE IS" CONDITION:**

Except as otherwise provided in this Deed and except for: (1) obligations imposed under the Federal Act authorizing this transfer; and (2) obligations imposed under the Comprehensive Environmental Response, Compensation, and Liability Act (42 USC Section 9601 et seq., as amended, hereinafter "CERCLA") the Property, including all improvements located thereon, is conveyed "AS IS" and "WHERE IS" without representation, warranty, or guaranty by Grantor as to the quantity, quality, character, title, condition, size or kind, or that the same is in condition or fit to be used for the purpose for which intended, and no claim for allowance or deduction upon such grounds will be considered. There is no obligation on the part of Grantor to make any alterations, repairs or additions. Grantor shall not be liable for any latent or patent defects to or on the Property, including all improvements located thereon, and Grantee acknowledges that Grantor has made no representation or warranty concerning the condition or state of repair of the Property, or any improvements located thereon, nor any agreement or promise to alter, improve, adapt, or repair any portion of the Property.

#### **NOTICES, USE RESTRICTIONS AND RESTRICTIVE COVENANTS**

The Notices, Use Restrictions, and Restrictive Covenants set out below shall be inserted by the GRANTEE verbatim or by express reference in any deed or other legal instrument by which GRANTEE, its successors or assigns, divests itself of either the fee simple title or any other lesser estate in the Property or any portion thereof.

##### **I. NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT:**

- a. The GRANTEE is hereby informed and does acknowledge that non-friable asbestos or asbestos-containing materials ("ACM") has been found in buildings and structures on the Property, as described in the Environmental Baseline Survey dated September 1997 (hereinafter "EBS").

b. The GRANTEE covenants and agrees that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos; and that the GRANTOR assumes no liability for future remediation of asbestos or damages for personal injury, illness, disability, or death arising from exposures to asbestos which occur after the date of this Deed, to the GRANTEE, its successors or assigns, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the Property, whether the GRANTEE, its successors or assigns, have properly warned or failed to properly warn the individual(s) injured. The GRANTEE agrees to be responsible for any future remediation of asbestos in buildings and structures to the extent such remediation is required by law.

c. Unprotected or unregulated exposures to asbestos in product manufacturing, shipyard and building construction workplaces have been associated with asbestos-related diseases. Both the Occupational Safety and Health Administration ("OSHA") and USEPA regulate asbestos because of the potential hazards associated with exposure to airborne asbestos fibers. Both OSHA and USEPA have determined that such exposure increases the risk of asbestos-related diseases, which include certain cancers and which can result in disability or death.

d. The GRANTEE acknowledges that it has inspected the Property as to its asbestos content and condition and any hazardous or environmental conditions relating thereto. The GRANTEE shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos hazards or concerns.

e. The GRANTOR assumes no liability for any damages to person or property, and gives no warranties, either express or implied, with regard to the presence or absence of asbestos or ACM in buildings and structures, or whether the Property is or is not suitable for a particular purpose. The failure of the GRANTEE to inspect, or to be fully informed as to the condition of all of any portion of the property offered, will not constitute grounds for any claim or demand against the United States.

## **II. LEAD BASED PAINT WARNING AND COVENANT:**

a. The GRANTEE is hereby informed and does acknowledge that all buildings on the Property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. The GRANTEE is notified that the Property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including

learning disabilities, reduced intelligence quotient, behavioral problems, and impaired memory. Lead poisoning also poses a particular risk to pregnant women. Under federal law, the seller of any interest on residential real property is required to provide the buyer with any information on lead-based paint hazards from risk assessments or inspections in the seller's possession and notify the buyer of any known lead-based paint hazards.

b. Available information concerning known lead-based paint and/or lead based paint hazards, the location of lead-based paint and/or lead-based paint hazards, and the condition of painted surfaces is contained in the EBS. The GRANTEE hereby acknowledges receipt of all of the EBS. In addition, the GRANTEE acknowledges that it has received the opportunity to conduct its own risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards prior to execution of this document.

c. The GRANTEE covenants and agrees that it shall not permit the occupancy or use of any buildings or structures on the Property as Residential Real Property without complying with this section and all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. In complying with these requirements, the GRANTEE covenants and agrees to be responsible for any abatement or remediation of lead-based paint or lead-based paint hazards on the Property found to be necessary as a result of the subsequent use of the property for residential purposes. The GRANTEE covenants and agrees to comply with solid or hazardous waste laws that may apply to any waste that may be generated during the course of lead-based paint abatement activities.

d. The Army assumes no liability for remediation or damages for personal injury, illness, disability, or death, to the Grantee, its successors and assigns, future owners, heirs and executors, sublessees or to any other person, including members of the general public, arising from or incident to post-transfer possession and/or use of structures existing on the Property at the time of transfer containing lead-based paint. Grantee acknowledges this disclaimer and covenants not to initiate any claim against the Army relating to or arising from the lead based paint in said structures.

e. The covenants, restrictions, and requirements of this Section shall be binding upon the GRANTEE, its successors and assigns and all future owners and shall be deemed to run with the land. The GRANTEE on behalf of itself, its successors and assigns covenants that it will include, verbatim or by express reference, and make legally binding, this Section in all subsequent transfers, leases, or conveyance documents.

### III. NOTICE OF THE POTENTIAL FOR THE PRESENCE OF MUNITIONS AND EXPLOSIVES OF CONCERN (MEC):

a. The Grantor completed a comprehensive records search and, based on that search, has undertaken and completed statistical and physical testing of areas on the Property where munitions and explosives of concern (MEC) may potentially present an explosive hazard. The term MEC means specific categories of military munitions that may pose unique explosives safety risks and includes: (1) Unexploded Ordnance (UXO), as defined in 10 U.S.C. 2710 (e) (9); (2) Discarded military munitions (DMM), as defined in 10 U.S.C. 2710 (e) (2); or (3) munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. 2710(e)(3), present in high enough concentrations to pose an explosive hazard.

b. A review of available records and information indicated that portions of the Property may contain MEC due to former munitions production and test activities. These portions include: the Group 6 parcel (Site L16 - a former fuze and booster production line) and the Test Site (Site L11 - a former 40 mm grenade range).

1. During the April to May 2001 and August 2002 timeframes, two munitions responses were conducted. The property was surveyed to a depth of four feet and seven MEC items (five fuzes at the Group 6 parcel and two 40 mm grenades at the Test Site) were recovered. All seven MEC items were consolidated at Site L11 and destroyed in a single event. Given the nature of munitions-related activities conducted at these sites, and the fact that no metallic anomalies were detected below 24 inches, this removal action was determined to be sufficiently protective.

2. All buildings and structures included on the Property have undergone an assessment to determine if they might pose an explosive hazard to future users. As a result of this study, it was determined that a total of seven buildings within the Property required thermal decontamination (flash burning) and demolition to make the property safe for transfer. These included four Group 6 buildings (Buildings 6-2, 6-4, 6-9, and 6-32) and three Group 7 buildings (Buildings 7-2, 7-4, and 7-6). In May and September 2002, respectively, this burning was completed eliminating any potential explosive hazards from these buildings. All building debris was subsequently removed from the property. In addition, explosive manufacturing equipment was removed from two Group 6 buildings (Buildings 6-36 and 6-37) and flashed to mitigate any potential explosive hazards.

A map depicting the location of munitions response sites and Buildings is provided at Exhibit C, D, and E.

c. Based upon said search and testing, the Grantor represents that, to the best of its knowledge, no MEC is currently present on the Property. Notwithstanding the records search and testing conducted by the Grantor, the parties acknowledge that, due to the former use of the Property as an active military installation, there is a possibility that MEC may exist on the Property. If the Grantee, any subsequent owner, or any other person should find any MEC on the Property, they shall immediately stop any intrusive or ground disturbing work in the area or in any adjacent areas and shall not move, disturb or attempt to destroy it, but shall immediately call the local police so that appropriate

explosive ordnance personnel can be dispatched to address such MEC as required under applicable law and regulations.

d. The Grantee acknowledges receipt of the "Site Specific Final Report, Ordnance Removal Action and Site Characterization, Former Joliet Army Ammunition Plant, Joliet, IL" dated February 2003 and the Statement of Clearance, Sites L11 (Test Site) and L16 (Group 6), former Joliet Army Ammunition Plant, Wilmington, IL.

#### **IV. CERCLA COVENANTS AND NOTICE:**

A. Pursuant to Section 120(h)(3) of CERCLA: With respect to Group 6, Group 7, and Test Site parcels:

- 1) Grantor hereby notifies Grantee that: (1) hazardous substances were stored, released, and disposed on the Group 6, Group 7 and Test Site parcels so as to exceed the time period or quantity limits established by 40 CFR Part 373 for notification (for the purposes of this Deed, "hazardous substances" shall have the same meaning as Section 101(14) of CERCLA); (2) available information regarding the type, quantity, and location of such substances and actions taken is enclosed hereto at Exhibits F and G and incorporated herein
- 2) Grantor hereby covenants that all remedial action necessary to protect human health and the environment with respect to any such hazardous substances remaining on the Group 6, Group 7 and Test Site parcels has been taken before the date of conveyance hereunder and are consistent with planned future use as a commercial and industrial park; and as between Grantor and Grantee, the Grantee's successors and assigns, future owners, heirs, and executors, any additional remedial action found to be necessary with regard to such hazardous substances remaining after the date of the conveyance shall be Grantor's responsibility; provided that Grantor shall be entitled to exercise its rights with respect to any potentially responsible party. Notwithstanding the foregoing, pursuant to CERCLA Section 120(h)(3)(B), the covenant issued to Grantee under this Subsection of this Deed shall not run to any person or entity determined to be a potentially responsible party with regard to property conveyed under this Deed.
- 3) Consistent with the terms of the MOA, dated August 2000, Grantor reserves a perpetual right of access to the Property, which Grantor may exercise in any case in which investigation, sampling, remedial action, corrective action, installing or removing groundwater monitoring wells, testing or monitoring of groundwater conditions is found to be necessary after the date of this Deed in order to fulfill Grantor's environmental responsibilities under this Deed; CERCLA; the June 1989 Federal Facility Agreement (hereinafter "FFA"); the October 1998 Record of Decision and any amendments thereto or any subsequent Records of Decision applicable to the Property (hereinafter "ROD"); and any other applicable laws and regulations.

- 4) For purposes of this Deed, Grantor and Grantee agree that the mere tenancy or occupation by Grantee, its successors and assigns, and all future owners, tenants, subtenants, heirs, and executors, of the portion of the Property so leased or occupied by Grantee, or the ownership of the Property by Grantee, its successors and assigns, future owners, heirs, and executors, will not cause any of said parties to be a potentially responsible party under this Deed solely because or as a result of such tenancy, occupancy or ownership.

**B. Pursuant to Section 120(h)(4) of CERCLA:**

- 1) The Grantor hereby notifies Grantee that the Grantor's Finding of Suitability to Transfer ("FOST") Joliet Army Ammunition Plant ("JOAAP") T-4 to State of Illinois, dated November 2003 identified an uncontaminated parcel on the Agricultural Tract 57, Field 2 parcel.
- 2) The Grantor hereby covenants that any remedial action found to be necessary after the date of this conveyance shall be Grantor's responsibility; provided that Grantor shall be entitled to exercise its rights with respect to any potentially responsible party. For purposes of this Deed, Grantor and Grantee agree that the mere tenancy or occupation by Grantee, its successors and assigns, and all future owners, tenants, subtenants, heirs, and executors, of the parcel so leased or occupied by the Grantee or the ownership of the Property by Grantee, its successors and assigns, future owners, heirs, and executors, will not cause any of said parties to be a potentially responsible party under this Deed solely because or as a result of such tenancy, occupancy or ownership.
- 3) Consistent with the terms of the MOA, Grantor hereby reserves a perpetual easement and right of access to the parcel, which Grantor may exercise in any case in which any response action, investigation, sampling, remedial action, corrective action, installing or removing groundwater monitoring wells, testing or monitoring of groundwater conditions is found to be necessary after the date of this Deed in order to fulfill Grantor's environmental responsibilities under this Deed; CERCLA; the FFA; the ROD, and any other applicable laws and regulations.

**V. GRANTEE'S ACKNOWLEDGEMENT OF THE ENVIRONMENTAL CONDITION OF THE PROPERTY:**

Grantee has reviewed the technical environmental reports including, but not limited to, the FOST for the Property, including all improvements located thereon, prepared by Grantor. Grantee has no knowledge to conclude that the technical environmental reports do not accurately describe the environmental condition of the Property. Grantee has

inspected the Property and has no knowledge to conclude that the Property is not suitable for Grantee's intended use. Grantor shall not be responsible for the remediation of any hazardous substances or petroleum that are introduced onto the Property after the date hereof, except to the extent that Grantor introduces such hazardous substances or petroleum onto the Property. This Article shall not affect Grantor's responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules, and regulations.

#### **VI. LAND USE RESTRICTIONS AND COVENANTS AND MONITORING WELL RESTRICTIONS AND COVENANTS FOR THE PROPERTY:**

The Property shall be subject to the land use restrictions and covenants as set forth in this Article.

- A. It is the intent of Grantor and Grantee that the land use restrictions and covenants and monitoring well use restrictions and covenants as set forth in this Article shall run with the land and restrict the use of the Property pursuant to the legislative mandate set forth in the Federal Act and are necessary to ensure the protection of human health and the environment.
- B. That within the boundaries of the Property, Grantee, its successors and assigns, future owners, heirs, and executors, shall not use, move, access, modify, remove, disturb, close, abandon, or otherwise harm or destroy any existing, or future existing, groundwater monitoring well that is owned by Grantor, without prior written permission from the Grantor in consultation with the United States Environmental Protection Agency (hereinafter "USEPA") and Illinois Environmental Protection Agency (hereinafter "IEPA"). If written permission is granted to any landowner(s) for the installation of a replacement well, it shall be installed, at no expense to the Grantor, pursuant to applicable federal laws and regulations and the standards current at the time set forth in the Illinois Water Well Construction Code or successor codes.
- C. Grantee covenants for itself, its successors, and assigns, future owners, heirs, and executors, that the land use restrictions and covenants as set forth in this Article shall be covenants running with the land and shall be binding upon the Grantee, its successors and assigns, future owners, heirs, and executors.
- D. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the land use restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of the Property. Notwithstanding this provision, failure to include the land use restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.



- E. Grantee, its successors and assigns, future owners, heirs, and executors, shall not knowingly or negligently undertake or allow any activity on or use of the Property that would violate the land use restrictions and covenants as set forth in this Article.
- F. The land use restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall have the right to enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of the Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.
- G. It is the intent of the Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Grantee, its successors and assigns, future owners (excluding the United States), heirs, and executors shall use the Property for commercial and industrial parks. In addition, the Property shall not be used by Grantee, its successors and assigns, future owners (including the United States), heirs, and executors, for:
1. any type of residential purpose;
  2. any type of educational purpose for children in grades kindergarten through twelve (12);
  3. any type of child or adult care purpose, provided however, this prohibition shall not exclude any child day care facility operated solely within the confines of a building structure;
  4. any type of solid or hazardous waste landfill purpose;
  5. any type of commercial quarry operation, provided that the foregoing restriction shall not prohibit: (a) mass earth work and site grading activities, including borrow, fill, and balancing; or (b) the excavation and use of gravel, sand, stone, aggregate and other on-site materials as rail bed ballast, in making concrete or asphalt, or in the construction of detention and retention facilities, rail beds, roads, or rights-of-way; or (c) other construction activities on or about the Property or in constructing roads and railroads leading or connecting to the Property to a distance of no more than ten (10) miles from the Property;
  6. any type of incineration of solid waste other than in connection with on-site manufacturing process(es);

7. any type of concrete batch plant or asphalt plant, unless the concrete or asphalt batch plant is operated for the purpose of servicing construction activities associated with the development of the Property or in constructing roads and railroads leading or connecting to the Property to a distance of no more than ten (10) miles from the Property; and
  8. no soil shall be removed from the Property to an off-site location unless it is tested and the determination is made that the soil can be relocated in compliance with all local, state and federal laws and regulations without posing a threat to human health or the environment
- H. Nothing contained herein shall preclude the GRANTEE from undertaking, in accordance with applicable laws and regulations, such additional steps necessary to allow for other use of the Property. Any additional remediation will be at no additional cost to the GRANTOR and may be pursued by GRANTEE so long as it is consistent with the Record of Decision for the Soil and Groundwater Operable Units, Joliet Army Ammunition Plant, October 1988 (hereinafter "ROD") and the subject Deed. Upon completion of such remediation required to allow other use of the Property and upon the GRANTEE'S obtaining the approval of the USEPA and the IEPA and, if required, any other regulatory agency, the GRANTOR agrees to release or, if appropriate, modify this restriction by executing and recording, a Partial Release of Covenant. GRANTEE shall bear the cost of recording and reasonable administrative fees.

## VII. NOTICES

### A. Correspondence

Any notice, request, consent, approval, or communication that either party desires or is required to give to the other shall be in writing and shall either be served personally or sent by mail, postage prepaid, addressed as follows:

*Prepared By: Joseph Whitaker*  
 GRANTOR  
 United States of America  
 U.S. Army Installation Support Mgmt. Activity  
 National Capital Region Field Office  
 ATTN: DAIM-BD-N  
 600 Army Pentagon  
 Washington, DC, 20310-0600

*Mail to:*  
 GRANTEE  
 Joliet Arsenal Development Authority  
 ATTN: Executive Director  
 Two Rialto Square  
 116 North Chicago Avenue  
 Suite 201  
 Joliet, IL 60432

*Mail taxes to:*

*Joliet Arsenal Development Authority  
 116 N. Chicago St. #201  
 Joliet IL 60432*

USEPA Region 5  
Joliet AAP Site Manager  
Superfund Division  
77 W. Jackson Boulevard  
Chicago, IL 60604

Illinois EPA  
Joliet AAP Project Manager  
Bureau of Land  
1021 N. Grand Ave., E.  
Springfield, IL 62794-9276

## VIII. CERCLA REMEDIATION

- A. Grantor acknowledges that the Joliet Army Ammunition Plant, Will County, Illinois has been identified as a National Priorities List site under CERCLA. Grantee acknowledges that Grantor has provided it with a copy of the FFA.
- B. Grantee, its successors and assigns, future owners, heirs, and executors agree that should any conflict arise between the terms of the ROD, in accordance with CERCLA, as they exist at the time a conflict arises, and the provisions of this Deed, the provisions of the FFA or ROD will prevail. Grantee, its successors and assigns, future owners, heirs, and executors, further agrees that notwithstanding any other provisions of this Deed, Grantor assumes no liability to Grantee, its successors and assigns, future owners, heirs, and executors should implementation of the FFA interfere with their use of the Property; and said parties shall have no claim on account of any such interference against the United States of America or any officer, agent, employee or contractor thereof, except to the extent that such claim arises out of negligent behavior on the part of the United States of America or any officer, agent, employee or contractor thereof.
- C. All construction and development activities conducted on the Property by Grantee, its successors and assigns, future owners, heirs and executors, shall be conducted in a manner, which is consistent with the ROD. In particular, Grantee, its successors and assignees, will not tamper with, damage, or destroy groundwater monitoring wells or otherwise impede remediation operations on land not conveyed in this transaction. Grantor and Grantee or its successors and assigns may acknowledge in the MOA (with the written concurrence of the USEPA and IEPA), or subsequent amendments thereto, that certain activities described therein are not inconsistent with the ROD. Notwithstanding any other provision of this Article, nothing in this Article reduces or in any way circumvents the protections provided and obligations imposed by CERCLA.
- D. All subsequent conveyances of the Property or any interests therein, by Grantee, its successors and assigns, future owners, heirs, and executors, shall be expressly subject to the rights and duties of Grantor to continue operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA, the FFA, or the ROD. Grantee, its successors and assigns, future owners, heirs, and executors, shall provide:

1. Initial Transfer Notice-reasonable notice (not less than 24 hours), to Grantor, USEPA and IEPA of any subsequent conveyance of the Property, or portions thereof (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities), to CenterPoint Industrial LLC (an Illinois limited liability company), CenterPoint Intermodal LLC (an Illinois limited liability company), CenterPoint Realty Services Corporation (an Illinois corporation), CenterPoint Properties Trust (a Maryland real estate investment trust), the State of Illinois, or the United States ;
  2. Pre-transfer Notice-30 days written notice of any other transfer to parties not described immediately above (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities) to Grantor, USEPA, and IEPA;
  3. Deed/lease-Within 14 days after the effective date of the transaction, Grantee, its successors and assigns, future owners, heirs, and executors, shall provide to Grantor, USEPA, and IEPA copies of the deed, lease, or other conveying instrument evidencing such transaction.
- E. Notwithstanding any other provision herein, nothing in this document reduces or in any way circumvents the protections provided and obligations imposed by CERCLA Section 120(h).

#### **NON-DISCRIMINATION PROVISION:**

Grantee shall not discriminate upon the basis of race, color, religion, sex, age, disability, or national origin in the use, occupancy, sale, or lease of the Property or any part thereof, or in its employment practices conducted thereon in violation of the provisions of Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. Section 2000d); the Age Discrimination Act of 1975 (42 U.S.C. Section 6102); and the Rehabilitation Act of 1973, as amended (29 U.S.C. Section 794). Grantor shall be deemed a beneficiary of this assurance without regard to whether it remains the owner of any real estate or interest therein in the locality of the Property and shall have the sole right to enforce this covenant in any court of competent jurisdiction. This assurance shall not apply, however, to the lease or rental of a room or rooms within a family dwelling unit; nor shall it apply with respect to religion or to premises used primarily for religious purposes. A violation or breach of this non-discrimination provision by Grantee, its successors and assigns, future owners, heirs, and executors, shall not result in a forfeiture or reversion of title.

#### **ANTI-DEFICIENCY ACT STATEMENT:**

The Army's obligation to pay or reimburse any money under this Deed is subject to the availability of funds appropriated for this purpose to the Department of the Army, and nothing in this Deed shall be interpreted to require obligations or payments by the United States in violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341.

#### **NO WAIVER**

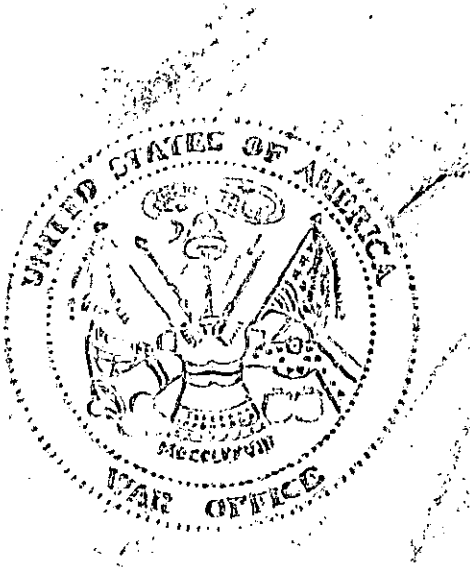
The failure of the GRANTOR to insist in any one or more instances upon complete performance of any of the said notices, covenants, conditions, restrictions, or reservations shall not be construed as a waiver or a relinquishment of the future performance of any such covenants, conditions, restrictions, or reservations, but the obligations of the GRANTEE, its successors and assigns, with respect to such future performance shall continue in full force and effect.

#### **NON-REVERTER:**

The title hereby conveyed is not qualified, defeasible, or subject to any special limitation, condition subsequent or executory limitation on behalf of the Grantor. The failure of Grantee or any successor owner or occupant of the Property (or any portion thereof) to comply with the covenants, restrictions, requirements, or other obligations set forth in this Deed shall not under any circumstances cause a forfeiture of title to the Property, a termination of any estate hereby created, or any reversion thereof, it being agreed by Grantor that the Grantor does not hold or possess any reversion, possibility of reverter, common law right of entry for condition broken, or right or power of forfeiture or termination with respect to the Property, all such possibilities, rights, or powers being hereby expressly waived by Grantor.

POSSESSION is to be given upon the delivery and acceptance of this Deed.

IN WITNESS WHEREOF, the GRANTOR has caused this Deed to be executed in its name by the Deputy Assistant Secretary of the Army (I&H), and the Seal of the Department of the Army to be hereunto affixed, this 30<sup>th</sup> day of September, 2004.



UNITED STATES OF AMERICA

BY:

Joseph W. Whitaker

Joseph W. Whitaker  
Deputy Assistant Secretary of the Army  
(Installations & Housing)  
OASA (I & E)

Signed sealed and delivered  
In the presence of:

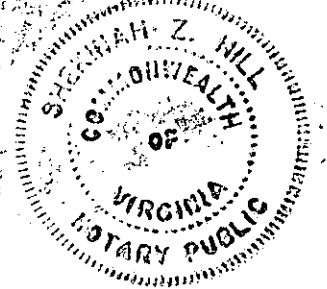
Witness Beverly I. Rasmussen

Witness Richard K. Evely

COMMONWEALTH OF VIRGINIA )  
 ) SS  
COUNTY OF ARLINGTON )

I, the undersigned, a Notary Public in and for the Commonwealth of Virginia, County of Arlington, whose commission as such expires on the 20th day of September, 2008 do hereby certify that his day personally appeared before me in the Commonwealth of Virginia, County of Arlington, Joseph W. Whitaker, Deputy Assistant Secretary of the Army (I & H), whose name is signed to the foregoing instrument and acknowledged the foregoing instrument to be his free act and deed, dated this 20th day of September, 2004, and acknowledged the same for and on behalf of the UNITED STATES OF AMERICA.

Heather M. Hill  
Notary Public



My commission expires: September 30, 2008


## APPROVAL AND ACCEPTANCE

On this 29<sup>th</sup> day of September, 2004, Joliet Arsenal Development Authority, Designee of the State of Illinois, and acting as the Agent of the State of Illinois for the purpose of accepting title to this real estate, does hereby accept and approve this Quit Claim Deed of Conveyance and does hereby agree to all of the terms and conditions set forth therein.

IN TESTIMONY WHEREOF, witness the signature of the Grantee, acting by and through Richard A. Kwasneski, Executive Director, this 29<sup>th</sup> day of September, 2004.

JOLIET ARSENAL DEVELOPMENT AUTHORITY

JOINT ARSENAL DEVELOPMENT AUTHORITY

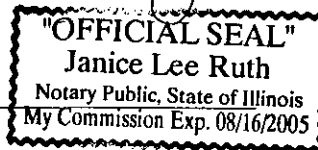
  
Richard A. Kwasneski  
Executive Director

STATE OF ILLINOIS       )  
  ) SS  
COUNTY OF COOK       )

The foregoing Quit Claim Deed of conveyance was acknowledged before me this  
29<sup>th</sup> day of September 2004, by Richard A. Kwasneski, as Executive Director of  
Joliet Arsenal Development Authority.

Janice Lee Ruth  
Notary Public, State of Illinois

My commission expires: \_\_\_\_\_





**Exhibit A****Legal Descriptions of T-4 (Total 304.80 acres)****Parcel A (Groups 6 and 7, and Ag Tract 57, Field 2, combined)**

THAT PART OF SECTION 18, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS:  
 COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 18, A DISTANCE OF 3795.5 FEET; THENCE NORTH 1 DEGREE 46 MINUTES 57 SECONDS WEST 1025.02 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 1 DEGREE 46 MINUTES 57 SECONDS WEST 3072.60 FEET; THENCE NORTH 88 DEGREES 21 MINUTES 16 SECONDS EAST 2938.94 FEET; THENCE SOUTH 79 DEGREES 11 MINUTES 35 SECONDS EAST 436.82 FEET; THENCE SOUTH 85 DEGREES 00 MINUTES 54 SECONDS EAST 185.05 FEET; THENCE NORTH 88 DEGREES 28 MINUTES 27 SECONDS EAST 264.28 FEET TO THE EAST LINE OF AFORESAID SECTION 18; THENCE SOUTH 1 DEGREE 31 MINUTES 23 SECONDS EAST ALONG SAID EAST LINE 2921.05 FEET TO A LINE 1025 FEET NORTH OF AND PARALLEL WITH THE SOUTH LINE OF AFORESAID SECTION 18; THENCE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST ALONG SAID PARALLEL LINE 3800.14 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS.  
 Containing 265.37 acres more or less

**Parcel C (Test Site)**

THAT PART OF SECTION 16, IN TOWNSHIP 33 NORTH RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS:  
 COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 16; THENCE SOUTH 88 DEGREES 23 MINUTES 02 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 16; A DISTANCE OF 25 FEET; THENCE NORTH 1 DEGREE 18 MINUTES 35 SECONDS WEST ALONG THE WEST LINE OF THE EAST 25.00 FEET OF SAID SECTION 16; A DISTANCE OF 1128.64 FEET TO THE POINT OF BEGINNING, THENCE SOUTH 88 DEGREES 29 MINUTES 55 SECONDS WEST 1090.62 FEET; THENCE NORTH 60 DEGREES 02 MINUTES 18 SECONDS WEST 281.93 FEET; THENCE NORTH 1 DEGREE 31 MINUTES 49 SECONDS WEST 1153.58 FEET; THENCE NORTH 88 DEGREES 26 MINUTES 53 SECONDS EAST 1336.04 FEET TO THE AFORESAID WEST LINE OF THE EAST 25.00 FEET OF SECTION 16; THENCE SOUTH 1 DEGREE 18 MINUTES 35 SECONDS EAST ALONG SAID WEST LINE 1301.91 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS.  
 Containing 39.43 acres more or less

C.K.A.

Rt. 53

Elwood, IL

Pin# 18-18-100-001

18-18-100-002

18-16-100-006



EXHIBIT

C

tabbles

# PLAT OF SURVEY--ISLAND CITY INDUSTRIAL PARK

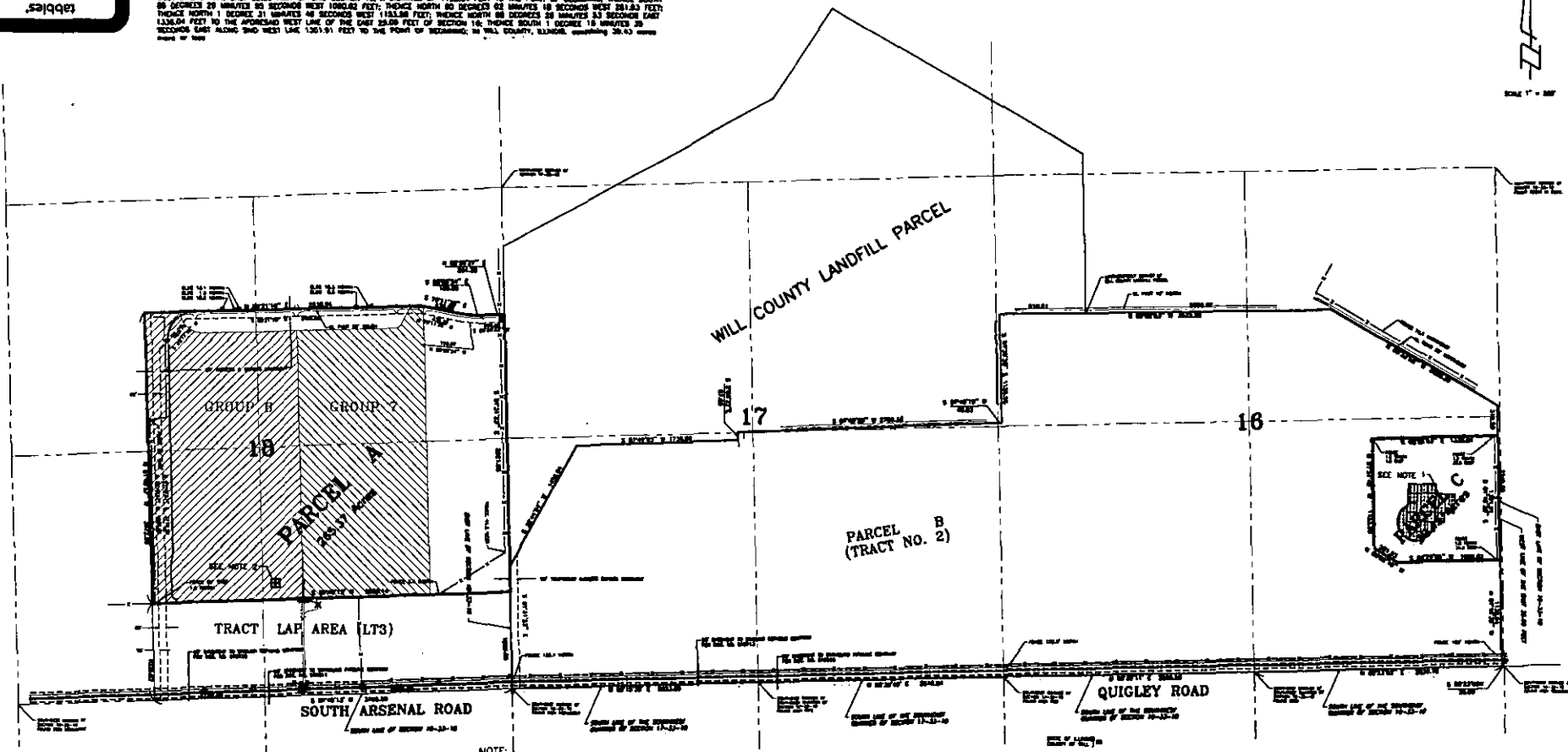
TRACT LAP AREA (L74)

## PARCEL A

THAT PART OF SECTION 16, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 16; THENCE SOUTH 87 DEGREES 40 MINUTES 13 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 16, A DISTANCE OF 3708.88 FEET; THENCE NORTH 1 DEGREE 48 MINUTES 37 SECONDS WEST 2072.80 FEET; THENCE NORTH 88 DEGREES 21 MINUTES 14 SECONDS EAST 2834.84 FEET; THENCE SOUTH 79 DEGREES 11 MINUTES 20 SECONDS EAST 434.62 FEET; THENCE NORTH 85 DEGREES 00 MINUTES 54 SECONDS EAST 180.28 FEET; THENCE NORTH 86 DEGREES 28 MINUTES 37 SECONDS EAST 394.28 FEET TO THE EAST LINE OF APPOINTEE SECTION 16; THENCE SOUTH 1 DEGREE 31 MINUTES 23 SECONDS EAST ALONG SAID EAST LINE 2921.20 FEET TO A LAKE 1003 FEET NORTH OF AND PARALLEL WITH THE SOUTH LINE OF APPOINTEE SECTION 16; THENCE SOUTH 87 DEGREES 48 MINUTES 13 SECONDS WEST ALONG SAID PARALLEL LINE 3880.14 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS, CONTAINING 265.57 ACRES MORE OR LESS.

## PARCEL C

THAT PART OF SECTION 16, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 16; THENCE SOUTH 87 DEGREES 40 MINUTES 13 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 16, A DISTANCE OF 3708.88 FEET; THENCE NORTH 1 DEGREE 48 MINUTES 37 SECONDS WEST 2072.80 FEET; THENCE NORTH 88 DEGREES 21 MINUTES 14 SECONDS EAST 2834.84 FEET; THENCE SOUTH 79 DEGREES 11 MINUTES 20 SECONDS EAST 434.62 FEET; THENCE NORTH 85 DEGREES 00 MINUTES 54 SECONDS EAST 180.28 FEET; THENCE NORTH 86 DEGREES 28 MINUTES 37 SECONDS EAST 394.28 FEET TO THE EAST LINE OF APPOINTEE SECTION 16; THENCE SOUTH 1 DEGREE 31 MINUTES 23 SECONDS EAST ALONG SAID EAST LINE 2921.20 FEET TO A LAKE 1003 FEET NORTH OF AND PARALLEL WITH THE SOUTH LINE OF APPOINTEE SECTION 16; THENCE SOUTH 87 DEGREES 48 MINUTES 13 SECONDS WEST ALONG SAID PARALLEL LINE 3880.14 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS, CONTAINING 265.57 ACRES MORE OR LESS.



NOTE:

- 1. APPROXIMATE LOCATION OF ORDINANCE REMOVAL GRIDS SITE L-11 AS SHOWN ON MWH DRAWING DATED 9/20/02 FIGURE 1-4 OF THIS QUITCLAIM DEED OF CONVEYANCE
- 2. APPROXIMATE LOCATION OF ORDINANCE REMOVAL GRIDS SITE L-16 AS SHOWN ON MWH DRAWING DATED 9/20/02 FIGURE 1-3 OF THIS QUITCLAIM DEED OF CONVEYANCE

THIS PLAT OF SURVEY WAS PREPARED BY GEOTECH INC. IN ACCORDANCE WITH THE REQUIREMENTS OF THE ILLINOIS SURVEYING ACT, CHAPTER 120, ILCS 120-0.1, AS AMENDED. THE SURVEY WAS COMPLETED ON 09/20/02. THE PLAT IS A TRUE AND CORRECT REPRESENTATION OF THE SURVEY.

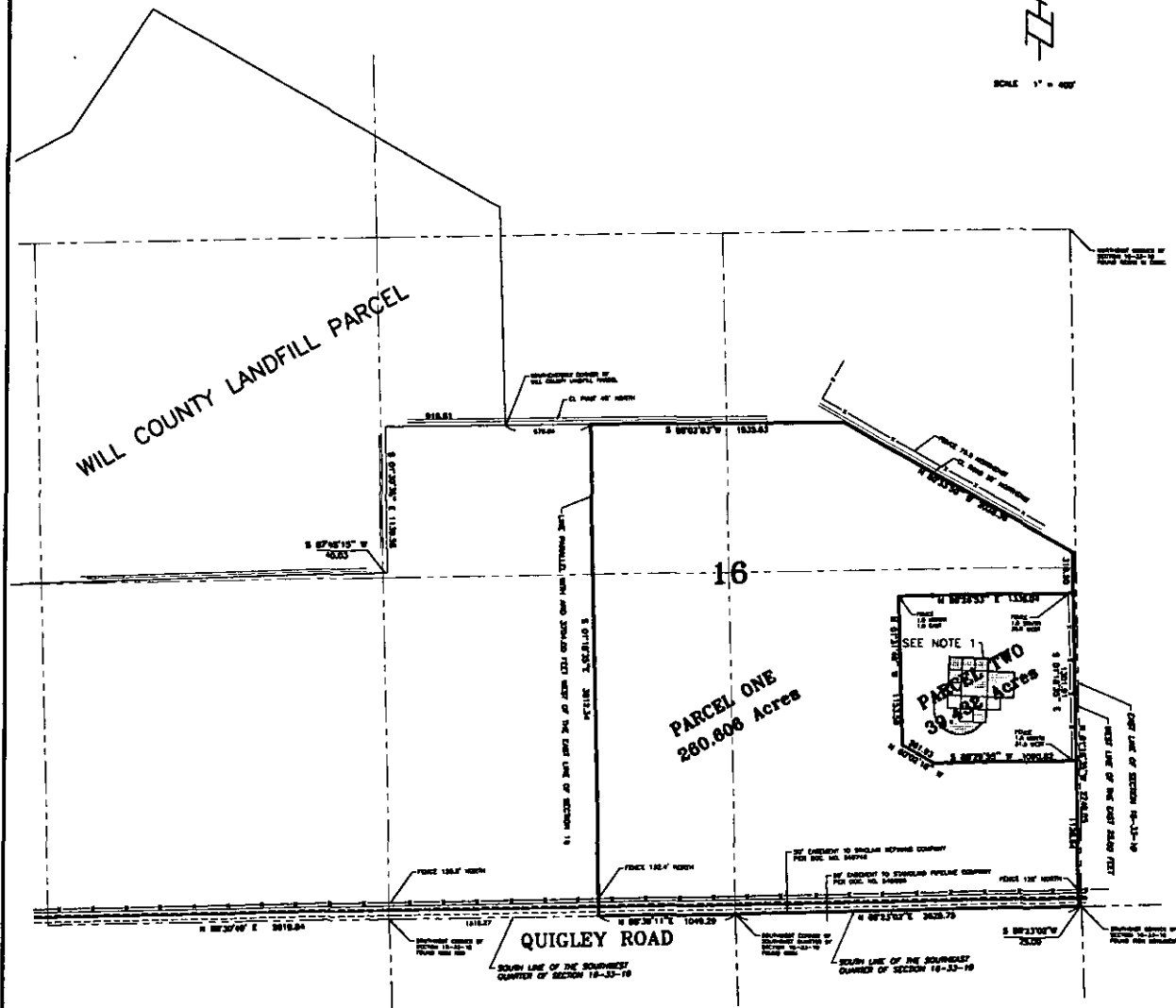
REVISION 2-17-08 (ADD GROUP 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100)	
GEOTECH INC.	
CONSULTING ENGINEERS - LAND SURVEYORS	
1207 CEDARWOOD DRIVE BLDG 1010 JOLIET, IL 60438	
PROJECT AREA	FIELD BOOK NO. 001
DRAWN BY: JLB	DATE: 09/20/02
SCALE: 1"=80'	JOB NO. 10000
APPROVE THE PLAN AND THE SURVEY AND RECORD IT IN THE PUBLIC RECORDS.	



## PLAT OF SURVEY

**PARCEL ONE:**  
THAT PART OF SECTION 16, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 16; THENCE SOUTH 88 DEGREES 23 MINUTES 02 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 16, A DISTANCE OF 25.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 1 DEGREE 18 MINUTES 35 SECONDS WEST ALONG THE WEST LINE OF THE EAST 25.00 FEET OF SAID SECTION 16, A DISTANCE OF 2748.05 FEET; THENCE NORTH 80 DEGREES 23 MINUTES 50 SECONDS WEST 2028.30 FEET; THENCE SOUTH 88 DEGREES 02 MINUTES 03 SECONDS WEST 1835.83 FEET TO A LINE PARALLEL WITH AND 3704.00 FEET WEST OF THE EAST LINE OF AFORESAID SECTION 16; THENCE SOUTH 1 DEGREE 18 MINUTES 35 SECONDS EAST ALONG SAID PARALLEL LINE 3812.34 FEET TO THE SOUTH LINE OF THE SOUTHWEST QUARTER OF AFORESAID SECTION 16; THENCE NORTH 88 DEGREES 23 MINUTES 11 SECONDS EAST ALONG SAID SOUTH LINE 1048.29 FEET TO THE SOUTHWEST CORNER OF THE SOUTHWEST QUARTER OF SAID SECTION 16; THENCE NORTH 88 DEGREES 23 MINUTES 02 SECONDS EAST ALONG THE SOUTH LINE OF SAID SOUTHWEST QUARTER 2628.75 FEET TO THE POINT OF BEGINNING; EXCEPTING THEREFROM THAT PART OF SAID SECTION 16, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 16; THENCE NORTH 88 DEGREES 23 MINUTES 02 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 16, A DISTANCE OF 25.00 FEET; THENCE NORTH 1 DEGREE 18 MINUTES 35 SECONDS WEST ALONG THE WEST LINE OF THE EAST 25.00 FEET OF SAID SECTION 16, A DISTANCE OF 1128.84 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 88 DEGREES 23 MINUTES 55 SECONDS WEST 1090.82 FEET; THENCE NORTH 80 DEGREES 02 MINUTES 18 SECONDS WEST 281.83 FEET; THENCE NORTH 1 DEGREE 31 MINUTES 40 SECONDS WEST 1153.58 FEET; THENCE NORTH 88 DEGREES 28 MINUTES 53 SECONDS EAST 1338.04 FEET TO THE AFORESAID WEST LINE OF THE EAST 25.00 FEET OF SECTION 16; THENCE SOUTH 1 DEGREE 18 MINUTES 35 SECONDS EAST ALONG SAID WEST LINE 1301.91 FEET TO THE POINT OF BEGINNING, IN WILL COUNTY, ILLINOIS.

**PARCEL TWO:**  
THAT PART OF SECTION 16, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 16; THENCE SOUTH 88 DEGREES 23 MINUTES 02 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 16, A DISTANCE OF 25.00 FEET; THENCE NORTH 1 DEGREE 18 MINUTES 35 SECONDS WEST ALONG THE WEST LINE OF THE EAST 25.00 FEET OF SAID SECTION 16, A DISTANCE OF 1128.84 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 88 DEGREES 23 MINUTES 55 SECONDS WEST 1090.82 FEET; THENCE NORTH 80 DEGREES 02 MINUTES 18 SECONDS WEST 281.83 FEET; THENCE NORTH 1 DEGREE 31 MINUTES 40 SECONDS WEST 1153.58 FEET; THENCE NORTH 88 DEGREES 28 MINUTES 53 SECONDS EAST 1338.04 FEET TO THE AFORESAID WEST LINE OF THE EAST 25.00 FEET OF SECTION 16; THENCE SOUTH 1 DEGREE 18 MINUTES 35 SECONDS EAST ALONG SAID WEST LINE 1301.91 FEET TO THE POINT OF BEGINNING, IN WILL COUNTY, ILLINOIS.



## NOTE:

1. APPROXIMATE LOCATION OF ORDINANCE REMOVAL GRIDS SITE L-11 AS SHOWN ON MWH DRAWING DATED 9/20/02 FIGURE 1-4 OF THIS QUITCLAIM DEED OF CONVEYANCE

STATE OF ILLINOIS )  
COUNTY OF WILL ) ss

TO: JOLIET ARSENAL DEVELOPMENT AUTHORITY  
CHICAGO TITLE INSURANCE COMPANY  
INTERNATIONAL UNION OF BRITISH ENGINEERS LOCAL  
150, 150A, 150B, AND 150C BUILDING CORPORATION

I, CHRISTOPHER M. PARESH, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF ILLINOIS, DO HEREBY CERTIFY THAT I HAVE SURVEYED, STAKED, AND LOCATED THE IMPROVEMENTS ON AND PLATTED THE LAND DESCRIBED IN THE FOREGOING CAPTION AND SHOWN ON THIS PLAT, AND THAT THIS PLAT IS A CORRECT REPRESENTATION THEREOF, DATED AT JOLIET, ILLINOIS THIS 17th DAY OF March, 2005, A.D.

ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 3369  
LICENSE EXPIRATION DATE 11/30/08  
FIELD WORK COMPLETED 12/06/04

**GEOTECH INC.**  
CONSULTING ENGINEERS - LAND SURVEYORS  
1207 CANNON DRIVE JOLIET, ILLINOIS 60435 815/738-1010

PLAT OF SURVEY

DRAWN BY: R.A.  
CHECKED BY: J.A.A.

JOB # 12883  
DATE: 3-04-05

16-10-04 BY: R.A. SHEET 1 OF 1  
16-10-04 BY: J.A.A. SHEET 2 OF 1  
DATE BY: REVISION

23

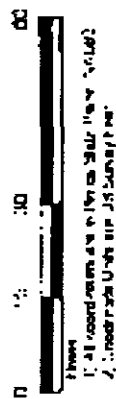
Figure 1-3

Orange Removal Grids Site 1-16

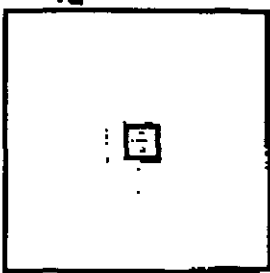
Former Joint Army Airfield Pilot  
Cafeteria, Report

Legend

- Sifting Area Sub-grid
- 100' x 100' Sifting Area
- Fuze Testing Pad
- Cut to 2'
- Cut to 1'
- Spoils Layout Area -  
100' x 300'

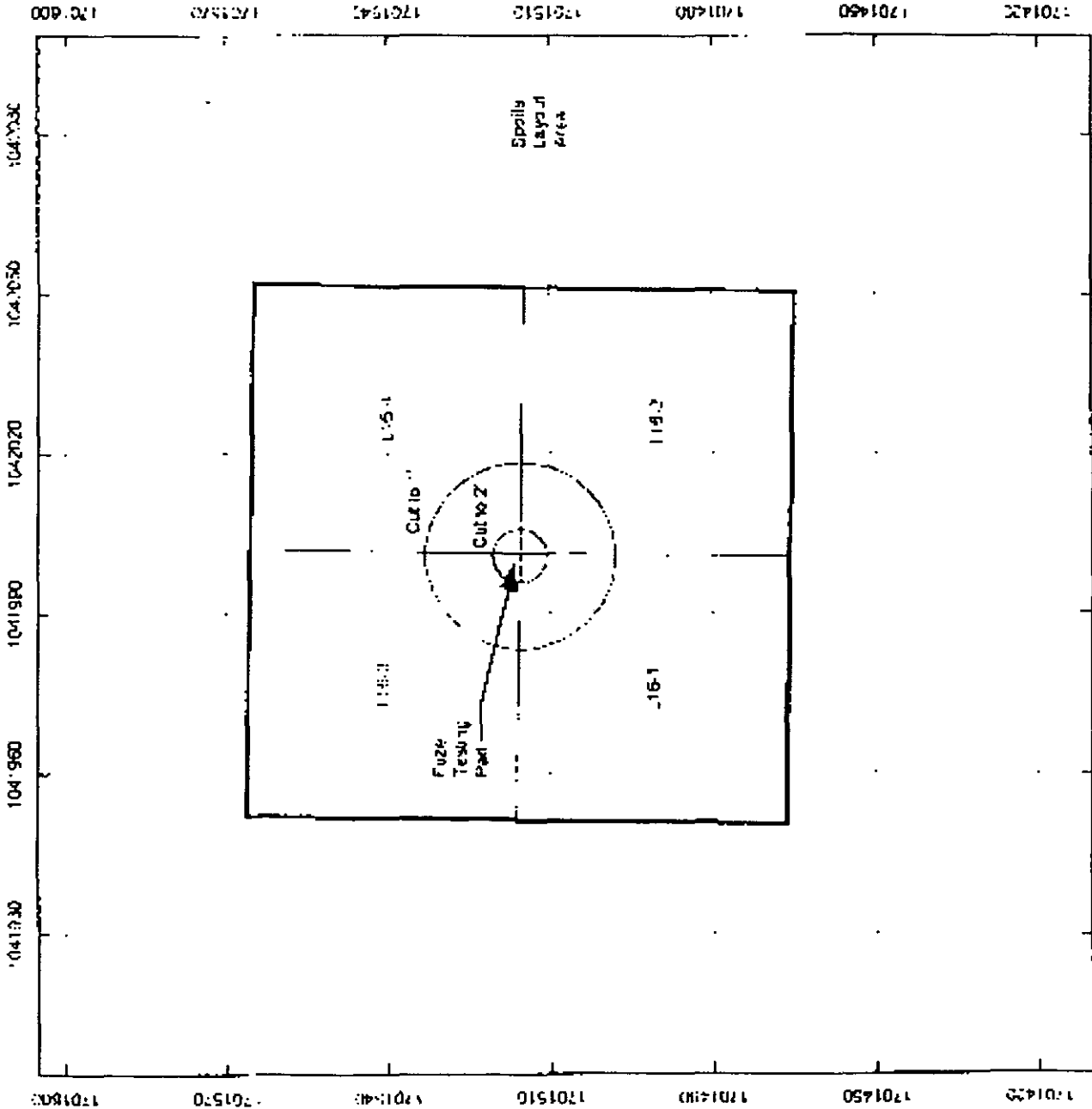


Project Area Index Map



- Legend
- Orange Grid
- Sifting Area Sub-Grid
- 100' x 100' Sifting Area
- Fuze Testing Pad
- Spoils Layout Area

Scale	1" = 100'
North Arrow	True North
Map Scale	1:100,000
Project Name	Orange Removal Grids Site 1-16
Contractor	MMH
Contract No.	100-100-100
Drawn By	MMH
Check By	MMH
App. Date	10/10/00



CANON

tabbles

8



MMH

Figure 1-4

Ordinance Removal Order, Site L11

Former Joint Army Ammunition Plant  
Jalisco, Illinois

Legend

--- Road

--- Fence Line

Removal Grids by Phase

Grading

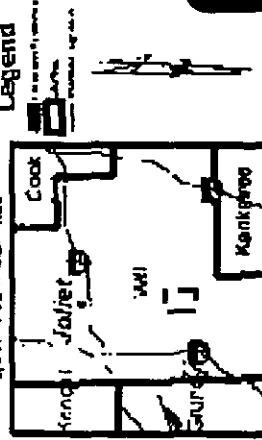
Authorized B20002

Authorized B21002



1. All removal activities shall be conducted in accordance with the Ordinance Removal Order, Site L11.  
2. All removal activities shall be conducted in accordance with the Ordinance Removal Order, Site L11.

Project Area Index Map



Legend

--- Road  
--- Fence Line  
--- Removal Grids by Phase  
--- Grading  
--- Authorized B20002  
--- Authorized B21002

Scale: 1 inch = 1 mile  
Scale: 1 inch = 1 mile  
Scale: 1 inch = 1 mile

Client: JSCC Contracting Division

Project: Joint

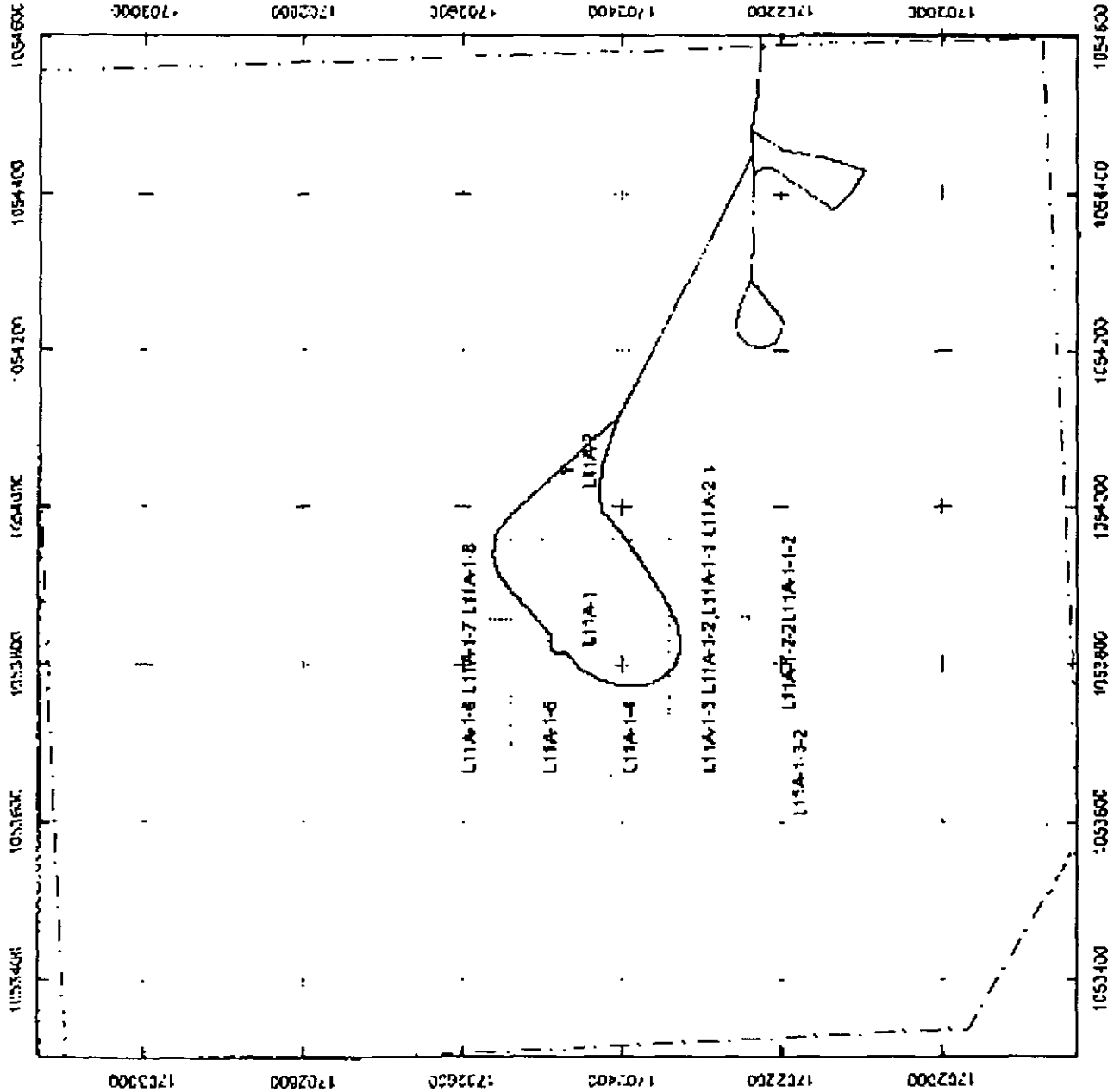
Contractor: MMH

Contract No.: 04-0001

Site: L11

Project: Joint

Scale: 1 inch = 1 mile



25

**EXHIBIT F****TABLE 2**

Table 2 – Notification of Hazardous Substance Storage, Release, and Disposal\*

<b>Building Number</b>	<b>Name of Hazardous Substance(s)</b>	<b>Date of Storage, Release, or Disposal</b>	<b>Remedial Actions</b>
Site L11, Impact Area	Arsenic contamination	1970 – 2002	Approx. 14 CYDs of arsenic-contaminated soil exceeding remedial goals were removed and disposed from the Impact Area in AUG 02.



Site L16 Bldgs. Nos.			
6-9	Unknown	Unk. - 1996	A 55 gal. Drum of unknown product was observed in 1996. It has been removed and disposed.
Soil near Bldg. 6- 2, and 32	RDX- contaminated soil	1941 - 2002	Approx. 13 CYD of RDX-contaminated soil were removed and sent for bioremediation from a drainage outflow east of 6-32, and from east side of 6-2. Three other sumps were removed from the Group 6 area, but none represented remediation goal (RG) exceedances.

<b>Site L17</b>			
Soil	PCB	Unk – 1999	Approx. 78 CYD of PCB-contaminated soil that exceeded the Remedial Goal was removed and disposed from a drainage ditch that flows southwest from Bldg. 7-6 in AUG 99.

\* The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Liability, and Compensation Act (CERCLA or 'Superfund') 42 U.S.C. section 9620(h). This table provides information on the storage of hazardous substances for one year or more in quantities greater than or equal to 1,000 kilograms or the hazardous substance's CERCLA reportable quantity (which ever is greater). In addition, it provides information on the known release of hazardous substances in quantities greater than or equal to the substances CERCLA reportable quantity. See 40 CFR Part 373.

## EXHIBIT G

TABLE 4

Table 4 – Notification of Munitions and Explosives of Concern (MEC)\*

Building Number	Type of MEC	Date of MEC Activity	Munitions Response Actions
Site L11, Bldgs. 1-49, 1-50C	Munitions constituents (MC)	1970 – 1975	Explosives were handled in these bldgs. and may have exceeded 40 CFR 373 reportable quantities. There were no reported spills or other evidence of hazardous substance releases. These bldgs. have been determined not to present an explosive hazard and are suitable for release to the public.
Impact Area	Unexploded ordnance (UXO)	1970 - 2002	The Impact Area (approx. 5 acres) was swept for MEC in MAY 01 and AUG 02. Several hundred pounds of metallic scrap and two UXO items (i.e., 40mm grenades) were removed. No metallic detections were found below 24 inches. The Statement of Clearance (SOC) recommends unrestricted future use.

Site L16 Bldgs. Nos.			
6-2, 4, 9, 32	MC	1941 - 2002	These buildings tested positive for MC (residual explosives) contamination. They were burned and demolished to the slab in AUG 02.
6-36, 37	MC	1941 - 2002	Equipment in these buildings tested positive for MC (residual explosives). The equipment was relocated to the above buildings and burned. These buildings were then demolished.
6-30A, 30C, 30D	N/A	N/A	These buildings were located so close to the burned buildings above, that they were removed for safety purposes.
"Spiral structure" (no Bldg No) SE corner of Group 6	DMM	Unk - 2002	A small, temporary structure, made of railroad ties was the apparent site of limited fuze and booster testing. The surrounding area (approx. 0.5 acre) was swept for MEC in MAY 01 and AUG 02. 4 fuzes and 1 suspect item (i.e., a possible cannon ball) were recovered and disposed. Several hundred pounds of metallic scrap were also removed. No metallic detections were found below 24" subgrade. The SOC recommends this site for unrestricted future use. _

<b>Site L17</b> Bldgs. Nos. 7-2, 4, 6	MC	1941 – 2002	These buildings tested positive for MC (residual explosives) contamination. They were “flushed” (burned) and demolished to the slab in AUG 02.
--	----	-------------	--

\* **Munitions and Explosives of Concern (MEC)**. This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means: (A) Unexploded Ordnance (UXO), as defined in 10 U.S.C. 2710 (e) (9); (B) Discarded military munitions (DMM), as defined in 10 U.S.C. 2710 (e) (2); or (C) Munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. 2710(e)(3), present in high enough concentrations to pose an explosive hazard.

WILL COUNTY RECORDER

## AFFIDAVIT - METES AND BOUNDS

STATE OF ILLINOIS

COUNTY OF WILL } SS.

DOCUMENT NO. \_\_\_\_\_

Kevin P. Breslin

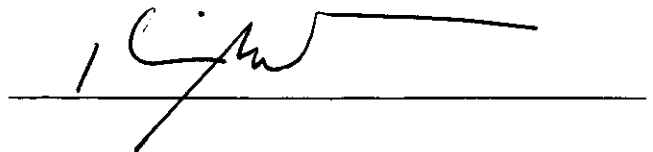
, being duly sworn on oath, states that

\_\_\_\_\_ resides at Chicago, Ill. . That the attached deed is not in violation of 765 ILCS 205/1 for one of the following reasons:

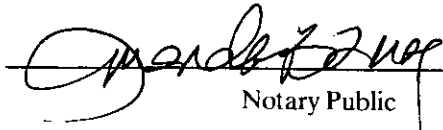
1. The division or subdivision of the land is into parcels or tracts of 5.0 acres or more in size which does not involve any new streets or easements of access.
2. The division of lots or blocks of less than one acre in any recorded subdivision which does not involve any new streets or easements of access.
3. The sale or exchange of parcels of land between owners of adjoining and contiguous land.
4. The conveyance of parcels of land or interests therein for use as right of way for railroads or other public utility facilities, which does not involve any new streets or easement of access.
5. The conveyance of land owned by a railroad or other public utility which does not involve any new streets or easements of access.
6. The conveyance of land for highway or other public purposes or grants or conveyances relating to the dedication of land for public use or instruments relating to the vacation of land impressed with a public use.
7. Conveyances made to correct descriptions in prior conveyances.
8. The sale or exchange of parcels or tracts of land existing on the date of the amendatory Act (7/17/59) into no more than two parts and not involving any new streets or easements of access.
9. The sale of a single lot of less than 5.0 acres from a larger tract when a survey is made by a registered surveyor; provided, that this exemption shall not apply to the sale of any subsequent lots from the same larger tract of land, as determined by the dimensions and configuration of the larger tract on October 1, 1973, and provided also that this exemption does not invalidate any local requirements applicable to the subdivision of land. Amended by P.A. 80-318, 1 eff. October 1, 1977.
10. The conveyance is of land described in the same manner as title was taken by grantor(s).

CIRCLE NUMBER ABOVE WHICH IS APPLICABLE TO ATTACHED DEED.

Affiant further states that he makes this affidavit for the purpose of inducing the Recorder of Deeds of Will County, Illinois, to accept the attached deed for recording.



SUBSCRIBED AND SWORN TO BEFORE ME

this 25 day of March 2005.  
Notary Public

## **Attachment 34**

Reference Document 4

R2003086458

R2002045744

①  
QUIT CLAIM DEED OF CONVEYANCE  
WITH LAND USE RESTRICTIONS AND  
COVENANTS AND GROUNDWATER  
RESTRICTIONS AND COVENANTS

MARY ANN STUKEL

41P

Will County Recorder  
Will County

R 2002045744

Page 1 of 41

LAK Date 03/15/2002 Time 11:05:07

Recording Fees:

55.00

1387455WB

Exempt under provisions of Paragraph B, Section 4,  
Real Estate Transfer Tax Act.

2/26/02

Date

Buyer, Seller or Representative

THIS QUIT CLAIM DEED OF CONVEYANCE (hereinafter "Deed") is made and entered into by and between the UNITED STATES OF AMERICA (the "GRANTOR"), acting by and through the Deputy Assistant Secretary of the Army (I&H) pursuant to a delegation of authority from the SECRETARY OF THE ARMY (the "Army"), under and pursuant to the powers and authorities contained in the provisions of Section 2923 of the National Defense Authorization Act For Fiscal Year 1996, Public Law No. 104-106, Division B, Title XXIX, Subtitle B, Section 2901 et. seq., approved February 10, 1996 (the "Federal Act") C/O Commander and District Engineer, United States Army Corps of Engineers, Louisville District, ATTN: CELRL-RE-M, P.O. Box 59, Louisville, Kentucky 40201-0059, and THE JOLIET ARSENAL DEVELOPMENT AUTHORITY, Designee of the State of Illinois, and acting as the Agent of the State of Illinois for the purpose of accepting title to this real estate, C/O Mr. Richard A. Kwasneski, Executive Director, Joliet Arsenal Development Authority, 500 South Water Street, Wilmington, Illinois 60481 (the "GRANTEE").

WITNESSETH: That for the monetary consideration as set forth in Article I. of this Deed, Grantor does hereby convey and quit claim to Grantee all interest in three (3) tracts of real estate located in Will County, Illinois, being more particularly described in Exhibit "A", which is attached hereto and incorporated herein, and defined as "Tract M5", "Tract M6 North" and "Tract M6 West", consisting of 217.657 acres. All three Tracts shall be collectively referred to herein as the "Property".

Consistent with this Deed, Grantor and Grantee have entered into a Memorandum of Agreement (hereinafter "MOA"), which was attached as Exhibit "A" to the Quit Claim Deed of Conveyance dated August 2, 2000 and which was recorded as Document No. R2000086264 on August 11, 2000 in the Will County, Illinois Recorder's Office. The MOA is incorporated herein by reference. The MOA sets forth additional rights and responsibilities of the parties to the MOA with respect to the Property and other real estate, and further addresses the parallel

\* THIS DOCUMENT IS BEING RE-RECORDED TO CORRECT THE LEGAL DESCRIPTION  
OF PARCEL B - TRACT M6 NORTH AND 1 ADD PLAT OF SURVEY \*

CHICAGO TITLE INSURANCE CO.

10642

10841

CP

LAK 12



activities of remediating a portion of the site in a manner consistent with law while allowing the Property to be redeveloped.

**I. CONSIDERATION:**

In accordance with Article III Section 3.02 of the MOA the monetary consideration to be paid by Grantee on behalf of the State of Illinois for the conveyance of the Property to Grantee (the "Conveyance Consideration") shall be zero, which reflects the fair market value of the Property as of the date of conveyance (\$218,225.00), less the fair market value of the work conducted in order to render it in a marketable condition for industrial use (the value of which work equals or exceeds \$218,225.00).

**II. ADDITIONAL CONVEYANCES (EASEMENTS/APPURTENANCES/IMPROVEMENTS, IF ANY):**

None

**III. RESERVED EASEMENTS AND RIGHTS-OF-WAY:**

See Article VIII, Section G below for CERCLA mandated access.

**IV. "AS IS" AND "WHERE IS" CONDITION:**

Except as otherwise provided in this Deed and except for: (1) the environmental condition of the Property; (2) obligations imposed under the Federal Act; and (3) obligations imposed under the Comprehensive Environmental Response, Compensation, and Liability Act (42 USC Section 9601 et seq., as amended, hereinafter "CERCLA") the Property, including all improvements located thereon, is conveyed "AS IS" and "WHERE IS" without representation, warranty, or guaranty by Grantor as to the quantity, quality, character, title, condition, size or kind, or that the same is in condition or fit to be used for the purpose for which intended, and no claim for allowance or deduction upon such grounds will be considered There is no obligation on the part of Grantor to make any alterations, repairs, or additions. Grantor shall not be liable for any latent or patent defects to or on the Property, including all improvements located thereon, and Grantee acknowledges that Grantor has made no representation or warranty concerning the condition or state of repair of the Property, or any improvements located thereon, nor any agreement or promise to alter, improve, adapt, or repair any portion of the Property.

**V. NOTICE OF THE PRESENCE OF ASBESTOS:**

A. Grantee, its successors and assigns, future owners, heirs and executors, are hereby informed and do acknowledge that non-friable asbestos or asbestos-containing materials ("ACM") has been found on the Property, as described in the final installation-wide Enhanced Preliminary Assessment Screening dated September 1997. To the best of Grantor's knowledge, the asbestos/ACM on the Property does not currently pose a threat to human health or the environment.

B. Grantee covenants and agrees that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos, and that Grantor assumes no liability for future remediation of asbestos or damages for personal injury, illness, disability, or death arising from exposures to asbestos and ACM that occur after the date of this Deed, to Grantee, its successors and assigns, future owners, heirs, and executors, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos or ACM on the Property, whether Grantee, its successors and assigns, future owners, heirs and executors, have properly warned or failed to properly warn the individual(s) injured. Grantee agrees to be responsible for any future remediation of asbestos and ACM that are contained within or are a part of buildings and/or structures existing on the Property, to the extent such remediation is required by law.

C. Unprotected or unregulated exposures to asbestos or ACM in product manufacturing and building construction workplaces have been associated with asbestos-related diseases. Both the Occupational Safety and Health Administration (hereinafter "OSHA") and the United States Environmental Protection Agency (hereinafter "USEPA") regulate asbestos or ACM because of the potential hazards associated with exposure to airborne asbestos fibers. Both OSHA and USEPA have determined that such exposure increases the risk of asbestos-related diseases, which include certain cancers and which can result in disability or death.

D. Grantee acknowledges that it has been notified of the opportunity to inspect the Property as to its asbestos content and condition and any hazardous or environmental conditions relating thereto. Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos hazards or concerns.

E. No warranties, either expressed or implied, are given with regard to the condition of the Property, including, without limitation, whether the Property does or does not contain asbestos or ACM or is or is not safe for a particular purpose. The failure of Grantee to inspect, or to be fully informed as to the condition of all or any portion of the Property offered, will not constitute grounds for any claim or demand against the United States.

## **VI. LEAD BASED PAINT WARNING AND COVENANT:**

A. The Property does not contain structures or buildings suitable for residential dwellings. The Grantee, and its successors and assigns, future owners, heirs and executors, is hereby informed and does acknowledge that all buildings on the property, which were

constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Lead exposure is especially harmful to young children and pregnant women. Such property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including learning disabilities, reduced intelligence quotient, behavioral problems, and impaired memory.

B. Available information concerning known lead-based paint and/or lead-based paint hazards, the location of lead-based paint and/or lead-based paint hazards, and the condition of painted surfaces is contained in the Environmental Baseline Survey, which has been provided to the Grantee. Additionally, the Finding of Suitability to Transfer ("FOST") dated May 2001 has been provided to the Grantee. The Grantee has been provided with a copy of the federally approved pamphlet on lead poisoning prevention. The Grantee hereby acknowledges receipt of all of the information described in this Article.

C. A risk assessment or inspection by the Grantee, its successors and assigns, future owners, heirs and executors, for possible lead-based paint hazards is recommended prior to the transfer of the Property. The Grantee, its successors and assigns, future owners, heirs and executors, acknowledge that they have received the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards prior to execution of the transfer.

D. The Grantee, its successors and assigns, future owners, heirs and executors, shall comply with all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards as defined in 40 Code of Federal Regulations Part 745.223 in or on structures existing on the Property at the time of transfer.

E. The Army assumes no liability for remediation or damages for personal injury, illness, disability, or death to the Grantee, its successors and assigns, future owners, heirs and executors, sublessees or to any other person, including members of the general public, arising from or incident to post-transfer possession and/or use of structures existing on the Property at the time of transfer containing lead-based paint. Grantee acknowledges this disclaimer and covenants not to initiate any claim against the Army relating to or arising from the lead-based paint in said structures.

#### **VII. NOTICE OF THE POTENTIAL FOR THE PRESENCE OF ORDNANCE AND EXPLOSIVES (OE):**

Ordnance and Explosive ("OE") investigations indicate that OE is not likely on the Property. However, because this is a former military installation with a history of OE, there is potential for OE to be present on the Property. In the event that Grantee, its successors and assigns, future owners, heirs, and executors should discover what appears to be of an ordnance or explosive nature on the Property, said Parties shall not attempt to remove or destroy such items. The said parties shall immediately stop any excavation or other work in the area, and notify the local Police Department. Grantor acknowledges its responsibility for OE and will take prompt

action upon notification of discovery. The GRANTEE, its successors and assigns, future owners, heirs, and executors will provide access to the GRANTOR, at no expense to the Government, for the purpose of removal of OE in the event the GRANTEE, its successors and assigns, future owners, heirs, and executors should discover any OE on the Property. For purposes of this Deed, OE, Ordnance and Explosives shall have the same meaning as that provided in the US Army Engineer Regulation (ER) 1110-1-8153, Ordnance & Explosive Response, 14 May 1999 or successor authority. ER 1110-1-8153 currently defines OE as Ordnance and Explosive which is anything related to munitions designed to cause damage to personnel or material through explosive force, incendiary action or toxic effects. Soils with explosive constituents are considered explosive if the concentration is sufficient to be reactive and present an imminent safety hazard as determined by the US Army Corps of Engineers, Ordnance and Explosive, Mandatory Center of Expertise. UXO shall have the same meaning as that provided in the 40 Code of Federal Regulations (CFR) 266.201, which defines UXO as, military munitions that have been primed, fused, armed, or otherwise prepared for action, and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material and remain unexploded either by malfunction, design, or any other cause.

#### **VIII. CERCLA COVENANTS AND NOTICE:**

Pursuant to Section 120(h)(3) of CERCLA, for the Property:

A. Grantor hereby notifies Grantee that: (1) hazardous substances were stored, released, and disposed on the Property so as to exceed the time period or quantity limits established by 40 CFR Part 373 for notification, (for the purpose of this Deed, "hazardous substances" shall have the same meaning as Section 101(14) of CERCLA); (2) available information regarding the type, quantity, and location of such substances and actions taken is at Exhibit "B" attached hereto and incorporated herein (also included in Exhibit "B" is a table identifying the chemicals used, stored, released and/or disposed on Joliet Army Ammunition Plant); (3) except as indicated by this table at Exhibit "B", there is no evidence indicating that hazardous substances were released on site, and the information regarding this storage and release indicates that there is no known existing threat to human health and the environment.

B. Removal activities conducted in 1999 resulted in the excavation of approximately 1,537 cubic yards of explosives contaminated soil (SRU 1) and 4,102 cubic yards of explosives and metals (SRU3) contaminated soil from Site M5. Remedial action activities conducted in 2000 resulted in the excavation of approximately 1,130 cubic yards of explosives contaminated soil (SRU 1) from Site M6 North. Site M6 West had no soil contamination requiring response.

C. All explosives and metals-contaminated soil from Site M5 and explosives-contaminated soil from Site M6 North have been excavated, transported to the untreated soil stockpile area at the Bio-remediation Facility for subsequent treatment, a final inspection has been conducted, and remedial goals for these two sites specified in the 1998

Record of Decision (ROD) have been achieved. Terms used in this Article shall have the same meaning as set forth in the ROD.

D. The source of this information is the Final Site M5 Closure Report, December 2000, and Final Site M6 Closure Report, December 2000. The United States Army Corps of Engineers, Louisville District, issued these Reports.

E. Grantor hereby covenants that all remedial actions necessary to protect human health and the environment with respect to any such hazardous substances remaining on the Property have been taken before the date of conveyance hereunder and are consistent with planned future use as a commercial and industrial park; and as between Grantor and Grantee, the Grantee's successors and assigns, future owners, heirs, and executors, any additional remedial action found to be necessary with regard to such hazardous substances remaining after the date of the conveyance shall be Grantor's responsibility; provided that Grantor shall be entitled to exercise its rights with respect to any potentially responsible party. Notwithstanding, the foregoing, pursuant to CERCLA Section 120(h)(3)(B), the covenant issued to Grantee under this Subsection VIII.A.2. of this Deed shall not run to any person or entity determined to be a potentially responsible party with regard to property conveyed under this Deed.

F. The remedial action for contaminated groundwater consists of establishing Groundwater Management Zones, deed restrictions, periodic site inspections, groundwater and surface water monitoring, and natural attenuation.

G. Consistent with the terms of the MOA, Grantor reserves a perpetual easement and right of access to the Property, which Grantor may exercise in any case in which investigation, sampling, remedial action, corrective action, installing or removing groundwater monitoring wells, testing or monitoring of groundwater conditions is found to be necessary after the date of this Deed in order to fulfill Grantor's environmental responsibilities under this Deed; CERCLA; the June 1989 Federal Facility Agreement (hereinafter "FFA"); the October 1998 Record of Decision and any amendments thereto or any subsequent Records of Decision applicable to the Property (hereinafter "ROD"); and any other applicable laws and regulations.

H. For purposes of this Deed, Grantor and Grantee agree that the mere tenancy or occupation by Grantee, its successors and assigns, and all future owners, tenants, subtenants, heirs, and executors, of the portion of the Property so leased or occupied by Grantee, or the ownership of the Property by Grantee, its successors and assigns, future owners, heirs, and executors, will not cause any of said parties to be a potentially responsible party under this Deed solely because or as a result of such tenancy, occupancy, or ownership.

#### **IX. GRANTEE'S ACKNOWLEDGMENT OF THE ENVIRONMENTAL CONDITION OF THE PROPERTY:**

Grantee has reviewed the technical environmental reports including, but not limited to, the FOST for the Property, including all the improvements located thereon, prepared by Grantor.

Grantee has no knowledge to conclude that the technical environmental reports do not accurately describe the environmental condition of the Property. Grantee has inspected the Property and has no knowledge to conclude that the Property is not suitable for Grantee's intended use. Grantor shall not be responsible for the remediation of any hazardous substances or petroleum that are introduced onto the Property after the date hereof, except to the extent that Grantor introduces such hazardous substances or petroleum onto the Property. This Article shall not affect Grantor's responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules, and regulations.

**X. LAND USE RESTRICTIONS AND COVENANTS AND MONITORING  
WELL RESTRICTIONS AND COVENANTS FOR THE PROPERTY:**

The Property, shall be subject to the land use restrictions and covenants as set forth in this Article.

A. It is the intent of Grantor and Grantee that the land use restrictions and covenants and monitoring well use restrictions and covenants as set forth in this Article shall run with the land and restrict the use of the Property pursuant to the legislative mandate set forth in the Federal Act and are necessary to ensure the protection of human health and the environment.

B. That within the boundaries of the Property Grantee, its successors and assigns, future owners, heirs, and executors, shall not use, move, access, modify, remove, disturb, close, abandon, or otherwise harm or destroy any existing, or future existing, groundwater monitoring well that is owned by Grantor, without prior written permission from the Grantor in consultation with the USEPA and the Illinois Environmental Protection Agency (hereinafter "IEPA"). If written permission is granted to any landowner(s) for the installation of a replacement well, it shall be installed, at no expense to the Grantor, pursuant to applicable federal laws and regulations and the standards current at the time set forth in the Illinois Water Well Construction Code or successor codes.

C. Grantee covenants for itself, its successors, and assigns, future owners, heirs, and executors, that the land use restrictions and covenants as set forth in this Article shall be covenants running with the land and shall be binding upon the Grantee, its successors and assigns, future owners, heirs, and executors.

D. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the land use restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of the above-referenced tracts. Notwithstanding this provision, failure to include the land use restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.

E. Grantee, its successors and assigns, future owners, heirs, and executors, shall not knowingly or negligently undertake or allow any activity on or use of the above-referenced tracts that would violate the land use restrictions and covenants as set forth in this Article.

F. The land use restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall have the right to enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.

G. It is the intent of the Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Grantee, its successors and assigns, future owners (excluding the United States), heirs, and executors shall use the above-referenced tracts for commercial and industrial parks. In addition, the above-referenced tracts shall not be used by Grantee, its successors and assigns, future owners (including the United States), heirs, and executors, for:

1. any type of residential purpose;
2. any type of educational purpose for children in grades kindergarten through twelve (12).
3. any type of child or adult care purpose, provided however, this prohibition shall not exclude any child day care facility operated solely within the confines of a building structure;
4. any type of solid or hazardous waste landfill purpose;
5. any type of commercial quarry operation, provided that the foregoing restriction shall not prohibit: (a) mass earth work and site grading activities, including borrow, fill, and balancing; or (b) the excavation and use of gravel, sand, stone, aggregate and other on-site materials as rail bed ballast, in making concrete or asphalt, or in the construction of detention and retention facilities, rail beds, roads, or rights-of-way; or (c) other construction activities on or about the Property or in constructing roads and railroads leading or connecting to the Property to a distance of no more than ten (10) miles from the Property;
6. any type of incineration of solid waste other than in connection with on-site manufacturing process(es); and
7. any type of concrete batch plant or asphalt plant, unless the concrete or asphalt batch plant is operated for the purpose of servicing construction activities associated with



the development of the Property or in constructing roads and railroads leading or connecting to the Property to a distance of no more than ten (10) miles from the Property.

**XI. GROUNDWATER RESTRICTIONS AND COVENANTS FOR THE PROPERTY:**

The Property lies within the Groundwater Management Zone established by the ROD for the approximate 23, 500 acres former Joliet Army Ammunition Plant.

A. The Property is subject to the groundwater restrictions and covenants as set forth in this Article.

B. It is the intent of Grantor and Grantee that the groundwater restrictions and covenants as set forth in this Article shall restrict the use of the Property for the protection of human health and the environment until such time as the Property has been remediated to the standards established in the ROD as contemplated in Section F below. The ROD and amendments or corrections thereto are available at the following repositories: Wilmington Library, Joliet Library, Administration Building at Joliet Army Ammunitions Plant, Region 5 USEPA, and IEPA Bureau of Land, Federal Facilities Unit, Springfield, Illinois.

C. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the groundwater restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of the Property. Notwithstanding this provision, failure to include the groundwater restrictions and covenants, as set forth in this Article, in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.

D. Grantee, its successors and assigns, future owners, heirs, and executors shall not undertake or allow any activity on or use of the Property that would violate the groundwater restrictions and covenants as set forth in this Article.

E. The groundwater restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall have the right to enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.

F. Grantee covenants for itself, its successors, and assigns, future owners, heirs, and executors that the groundwater restrictions and covenants as set forth in this Article shall be covenants running with the land and shall be binding upon Grantee, its successors and assigns, future owners, heirs, and executors. Upon the successful remediation of the Property to the



industrial standards set forth in the ROD, Grantor, with the written concurrence of the USEPA and the IEPA, shall release, in whole or in part, any relevant groundwater restriction and covenant set forth in this Article. The referenced release shall not be unreasonably withheld. In addition, the referenced release shall be executed by the Secretary of the Army, United States Department of the Army, or his/her authorized designee.

G. It is the intent of Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Unless the following restrictions in this Section G are removed or amended in accordance with this Article, within the boundary of the Property, Grantee, its successors and assigns, future owners, heirs, and executors:

1. Shall not conduct any activity (e.g., any anthropogenic seismic activity, deep excavation activity, or drilling or pumping a well within the Silurian dolomite aquifer) that would increase the volume or area of the contaminated groundwater, damage the confining layers that underlie the contaminated groundwater (e.g., fracturing the Maquoketa confining layer or any other existing confining layer(s) or strata of the Maquoketa confining layer), or create pathways of exposure to human or ecological receptors from the contaminated groundwater to the extent prohibited by the ROD. For identification purposes, the groundwater within the glacial drift and the Silurian dolomite aquifer (collectively referred to herein as "the contaminated groundwater") is located above the Maquoketa confining bed.

2. Shall not use the groundwater above the Maquoketa confining bed for potable purposes.

H. Shallow groundwater above the Maquoketa confining bed has the potential to be contaminated with hazardous substances, including, but not limited to explosives, their derivatives or volatile organic compounds. In the event shallow groundwater above the Maquoketa confining bed is encountered at any time due to the disturbance or excavation of surface or subsurface soil, Grantee, its successors and assigns, future owners, heirs, and executors, shall comply with all laws and regulations that are applicable to the safe and proper management, discharge, disposal, or treatment of all shallow groundwater encountered.

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## **XII. GROUNDWATER RESTRICTIONS AND COVENANTS FOR DEED RESTRICTED PARCEL:**

The tract of real estate described in this Article (encompassing M6 North, M6 West and that part of parcel M5 lying west of the east line of the west half of the west half of section 36, containing 136.905 acres, more or less) shall be subject to the groundwater restrictions and covenants as set forth in this Article.

A. The tract of real estate that is subject to the groundwater restrictions and covenants as set forth in this Article shall be referred to in this Article as the Deed Restricted Parcel and is more particularly described in Exhibit "C" attached hereto and incorporated herein.

B. It is the intent of Grantor and Grantee that the groundwater restrictions and covenants as set forth in this Article shall restrict the use of the Deed Restricted Parcel for the protection of human health and the environment until such time as the Deed Restricted Parcel has been remediated to the standards established in the ROD, as provided in Section F below.

C. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the groundwater restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of the Deed Restricted Parcel. Notwithstanding this provision, failure to include the groundwater restriction and covenant as set forth in this Article in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.

D. Grantee, its successors and assigns, future owners, heirs, and executors, shall not undertake or allow any activity on or use of the Deed Restricted Parcel that would violate the groundwater restrictions and covenants as set forth in this Article.

E. The groundwater restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.

F. Grantee covenants for itself, its successors and assigns, future owners, heirs, and executors that the groundwater restrictions and covenants as set forth in this Article shall be covenants running with the land and shall be binding upon Grantee, its successors and assigns, future owners, heirs, and executors. Upon the successful remediation of the Deed Restricted Parcel to the industrial standards set forth in the ROD, Grantor, with the written concurrence of the USEPA and the IEPA, shall release, in whole or in part, any relevant groundwater restriction and covenant set forth in this Article. The referenced release shall not be unreasonably withheld. In addition, the referenced release shall be executed by the Secretary of the Army, United States Department of the Army, or his/her authorized designee.

G. It is the intent of Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Unless the following restrictions in this Section G are removed or amended in accordance with Section F of this Article, within the boundary of the Deed Restricted Parcel, Grantee, its successors and assigns, future owners, heirs, and executors:

1. Shall not use the contaminated groundwater; and
2. Shall not drill, construct, pump, or use groundwater supply wells

**XIII. CERCLA REMEDIATION:**

A. Grantor acknowledges that the Joliet Army Ammunition Plant, Will County, Illinois has been identified as a National Priorities List site under CERCLA. Grantee acknowledges that Grantor has provided it with a copy of the FFA.

B. Grantee, its successors and assigns, future owners, heirs, and executors agree that should any conflict arise between the terms of the ROD, or any amendment thereto in accordance with CERCLA, as they exist at the time a conflict arises, and the provisions of this Deed, the provisions of the ROD, or any amendment thereto, will prevail. Grantee, its successors and assigns, future owners, heirs, and executors, further agree that notwithstanding any other provisions of this Deed, Grantor assumes no liability to Grantee, its successors and assigns, future owners, heirs, and executors should implementation of the FFA interfere with their use of the Property; and said parties shall have no claim on account of any such interference against the United States of America or any officer, agent, employee, or contractor thereof, except to the extent that such claim arises out of negligent behavior on the part of the United States of America or any officer, agent, employee or contractor thereof.

C. All construction and development activities conducted on the Property by Grantee, its successors and assigns, future owners, heirs and executors, shall be conducted in a manner that is consistent with the ROD, or any amendment thereto. Grantor and Grantee or its successors and assigns, future owners, heirs, and executors may acknowledge in the MOA (with the written concurrence of the USEPA and IEPA), or subsequent amendments thereto, that certain activities described therein are not inconsistent with the ROD, or any amendment thereto. Notwithstanding any other provision of this Article, nothing in this Article reduces or in any way circumvents the protections provided and obligations imposed by CERCLA.

D. All subsequent conveyances of the Property or any interests therein, by Grantee, its successors and assigns, future owners, heirs, and executors, shall be expressly subject to the rights and duties of Grantor to continue operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA, the FFA, or the ROD, or any amendment thereto. Grantee, its successors and assigns, future owners, heirs, and executors, shall provide:

1. Initial Transfer Notice – reasonable notice (not less than 24 hours), to Grantor, USEPA, and IEPA of any subsequent conveyance of the Property, or portions thereof (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities), to CenterPoint Industrial LLC (an Illinois limited liability company), CenterPoint Intermodal LLC (an Illinois limited liability company), CenterPoint Realty Services Corporation (an Illinois corporation), CenterPoint Properties Trust (a Maryland real estate investment trust), the State of Illinois, or the United States;

2. Pre-transfer Notice - 30 days written notice of any other transfer to parties not described immediately above (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities) to Grantor, USEPA, and IEPA;

3. Deed/lease - Within 14 days after the effective date of the transaction, Grantee, its successors and assigns, future owners, heirs, and executors, shall provide to Grantor, USEPA, and IEPA copies of the deed, lease, or other conveying instrument as a proof of such transaction.

E. Notwithstanding any other provision herein, nothing in this document reduces or in any way circumvents the protections provided and obligations imposed by CERCLA Section 120(h).

#### **XIV. NON-DISCRIMINATION PROVISION:**

Grantee shall not discriminate upon the basis of race, color, religion, sex, age, disability, or national origin in the use, occupancy, sale, or lease of the Property or any part thereof, or in its employment practices conducted thereon in violation of the provisions of Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. Section 2000d); the Age Discrimination Act of 1975 (42 U.S.C. Section 6102); and the Rehabilitation Act of 1973, as amended (29 U.S.C. Section 794). Grantor shall be deemed a beneficiary of this assurance without regard to whether it remains the owner of any real estate or interest therein in the locality of the Property and shall have the sole right to enforce this covenant in any court of competent jurisdiction. This assurance shall not apply, however, to the lease or rental of a room or rooms within a family dwelling unit; nor shall it apply with respect to religion or to premises used primarily for religious purposes. A violation or breach of this non-discrimination provision by Grantee, its successors and assigns, future owners, heirs, and executors, shall not result in a forfeiture or reversion of title.

#### **XV. ANTI-DEFICIENCY ACT STATEMENT:**

The Army's obligation to pay or reimburse any money under this Deed is subject to the availability of appropriated funds to the Department of the Army, and nothing in this Deed shall be interpreted to require obligations or payments by the United States in violation of the Anti-Deficiency Act.

#### **XVI. NON-REVERTER:**

The title hereby conveyed is not qualified, defeasible, or subject to any special limitation, condition subsequent or executory limitation. The failure of Grantee or any successor owner or occupant of the Property (or any portion thereof) to comply with the covenants, restrictions, requirements, or other obligations set forth in this Deed shall not under any circumstances cause a forfeiture of title to the Property, a termination of any estate hereby created, or any reversion thereof, it being agreed by Grantor that neither Grantor or any other party holds or possesses any reversion, possibility of reverter, common law right of entry for condition broken, or right or

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power of forfeiture or termination with respect to the Property, all such possibilities, rights, or powers being hereby expressly waived by Grantor.

POSSESSION is to be given upon the delivery and acceptance of this Deed.

UNITED STATES OF AMERICA

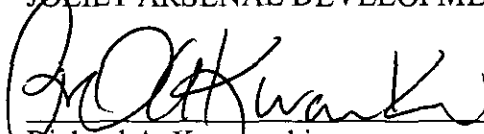
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## APPROVAL AND ACCEPTANCE

On this 2nd day of April, 2001, Joliet Arsenal Development Authority, Designee of the State of Illinois, and acting as the Agent of the State of Illinois for the purpose of accepting title to this real estate, does hereby accept and approve this Quit Claim Deed Of Conveyance and does hereby agree to all of the terms and conditions set forth therein.

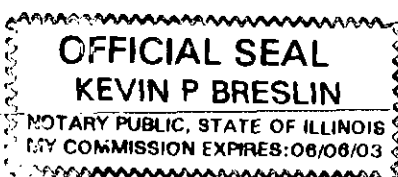
IN TESTIMONY WHEREOF, witness the signature of the Grantee, acting by and through Richard A. Kwasneski, Executive Director, this 2nd day of April, 2001.

JOLIET ARSENAL DEVELOPMENT AUTHORITY

  
 Richard A. Kwasneski  
 Executive Director

STATE OF ILLINOIS )  
 )SS  
 COUNTY OF COOK )

The foregoing Quit Claim Deed of conveyance was acknowledged before me this 2nd day of April, 2001, by Richard A. Kwasneski, as Executive Director of Joliet Arsenal Development Authority.



  
 Notary Public, State of Illinois

My commission expires \_\_\_\_\_.

Re-Recording  
 Prepared By: & RETURN TO:  
 Katz, Randall Weinberg & Richman  
 333 W. Wacker  
 Suite 1800  
 Chicago, IL 60606  
 ATTN: Kevin P. Breslin

Tax Bills:  
 Center Point Properties  
 1808 Swift Rd  
 Oak Brook, IL 60523

Mail to:  
 Joliet Arsenal Development Authority  
 1500 S. Water St.  
 Wilmington, IL 60481

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PARCEL A - TRACT M5

THE EAST 1770.00 FEET OF THE SOUTH 1930.00 FEET OF THE SOUTHEAST QUARTER OF SECTION 35; ALSO THE WEST 1660.00 FEET OF THE SOUTH 1930.00 FEET OF THE SOUTHWEST QUARTER OF SECTION 36; ALL IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, WILL COUNTY, ILLINOIS, containing 151.972 acres more or less.

Vacant land on Drummord Road, Elwood

pin #'s 10-35-100-001  
10-36-300-001  
10-36-300-002  
10-36-200-001  
10-26-100-001  
10-25-100-001

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EXHIBIT A



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PARCEL B - TRACT M6North

THAT PART OF THE NORTHWEST QUARTER OF SECTION 25 AND PART OF THE NORTHEAST QUARTER OF SECTION 26, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID NORTHWEST QUARTER OF SECTION 25; THENCE SOUTH 1 DEGREE 45 MINUTES 06 \*\* SECONDS EAST ALONG THE WEST LINE OF SAID ~~NORTHEAST~~ QUARTER 708.04 FEET TO A LINE PARALLEL WITH AND 25 FEET SOUTHERLY OF THE EXISTING PAVEMENT CENTER OF DRUMMOND ROAD; THENCE SOUTH 57 DEGREES 44 MINUTES 15 SECONDS WEST ALONG SAID PARALLEL LINE 162.48 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 9 DEGREES 03 MINUTES 54 SECONDS EAST 107.15 FEET; THENCE SOUTH 88 DEGREES 13 MINUTES 27 SECONDS EAST 598.85 FEET TO A POINT ON THE WESTERLY LINE OF TRACT NO. 1 OF EXHIBIT B IN QUIT CLAIM DEED RECORDED AS DOCUMENT R2000-86264; THENCE ALONG SAID WESTERLY LINE SOUTH 65 DEGREES 07 MINUTES 25 SECONDS WEST 173.34 FEET, SOUTH 87 DEGREES 58 MINUTES 20 SECONDS WEST 266.44 FEET, SOUTH 51 DEGREES 00 MINUTES 51 SECONDS WEST 553.31 FEET, SOUTH 1 DEGREE 45 MINUTES 06 SECONDS EAST 365.01 FEET, AND SOUTH 17 DEGREES 51 MINUTES 34 SECONDS EAST 283.27 FEET TO THE INTERSECTION WITH A LINE PARALLEL WITH AND 50 FEET SOUTHERLY OF THE EXISTING PAVEMENT CENTER OF CONNECTING ROAD; THENCE SOUTH 88 DEGREES 00 MINUTES 55 SECONDS WEST ALONG SAID PARALLEL LINE 1643.44 FEET TO A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTHERLY ALONG SAID PARALLEL LINE TO THE INTERSECTION WITH A LINE 25 FEET SOUTHERLY OF AND PARALLEL WITH THE EXISTING PAVEMENT CENTER OF DRUMMOND ROAD; THENCE EASTERLY ALONG SAID PARALLEL LINE TO THE POINT OF BEGINNING. containing 38.711 acres more or less.

\*\*NORTHWEST\*\*

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## PARCEL B - TRACT M6West

THAT PART OF SECTIONS 26 AND 35 IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: COMMENCING AT THE INTERSECTION OF THE SOUTH LINE OF AFORESAID SECTION 35 WITH A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTH 06 DEGREES 05 MINUTES 12 SECONDS EAST ALONG SAID PARALLEL LINE 254.34 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 18 DEGREES 04 MINUTES 43 SECONDS WEST 1830.93 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 2 DEGREES 00 MINUTES 44 SECONDS WEST 813.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 87 DEGREES 59 MINUTES 16 SECONDS EAST TO A LINE PARALLEL WITH AND 225 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTH 2 DEGREES 00 MINUTES 44 SECONDS WEST ALONG SAID PARALLEL LINE 2235.66 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 16 DEGREES 06 MINUTES 33 SECONDS EAST 3640.01 FEET TO THE INTERSECTION WITH A LINE PARALLEL WITH AND 50 FEET SOUTHERLY OF THE EXISTING PAVEMENT CENTER OF CONNECTING ROAD; THENCE SOUTH 88 DEGREES 00 MINUTES 55 SECONDS WEST ALONG SAID PARALLEL LINE 210.40 FEET TO THE INTERSECTION WITH A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE SOUTH 16 DEGREES 06 MINUTES 33 SECONDS WEST ALONG SAID PARALLEL LINE 3606.56 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE SOUTH 2 DEGREES 00 MINUTES 44 SECONDS EAST 2267.55 FEET TO THE POINT OF BEGINNING; containing 26.974 acres more or less.

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TABLE E-1

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**CHEMICALS USED, STORED, RELEASED, DISPOSED OF ON  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS  
JOAAP, WILL COUNTY, ILLINOIS**

Section	Building	Substance	Used, Stored, Released, Disposed	Date	Quantity	Action	Reference
L6	70-8	Varnish	Used	1954			
		Thinner Vapors	Used	1954			DOTA14
L16	6-2	TNT	Used	1953			DOTA14
	6-4	RDX	Used	1963			DOTA13
		TNT	Used	1953			DOTA18
	6-6	TNT	Used	1953-1954			DOTA13
		Petroleum hydrocarbon thinner	Used	1954			DOTA13, DOTA14 DOTA14
L17	7-2	Tetryl	Used	1950, 1953			DOTA12, DOTA13
		Barium stearate	Used	1953			DOTA13
	7-4	Tetryl	Used	1950, 1953, 1955, 1957,			DOTA12, DOTA13, DOTA15, DOTA16
		Barium Stearate	Used	1953			DOTA13
	7-6	Tetryl	Used	1950, 1953			DOTA12, DOTA13
		Acetone	Used	1950			DOTA12
		Lead Azide	Used	1953			DOTA13
	7-7	Black powder	Used	Unknown			DOTA13
L32	60-11	Chromate Cooling Water	Stored	Present	55 gallons		FIELD1
		Treatment					FIELD1
		Betz Entec	Stored	Present	25 gallons		FIELD1
M5	1002-10	Dimethylaniline sulfate	Used	1971			AEHA14
	1003-10	Tetryl	Used	1971			AEHA14
		Acetone	Used	1971			DOTA25
	1005-11	Tetryl	Used	1971			AEHA14, DOTA25
	1008-1	TNT	Used	1955			HIST4
	1008-2	Nitric acid	Used	1971			AEHA14
		Sulfuric acid	Used	1971			AEHA14
	1009-1-1	Tetryl	Used	1957			HIST19, HIST20
		Dinitromethylaniline	Used	1957			HIST19, HIST20
		Dichloroethane	Used	1957			HIST19, HIST20
	1009-2-1	Tetryl	Used	1971			AEHA14, DOTA25
M6	722-4	TNT	Used				FIELD1
		Sodium sulfate	Stored	Unknown	2,800 gallons	Two tanks removed	ATEC08
	722-6	Carbon tetrachloride	Stored	Present	1 pint		FIELD1
		Mercury	Stored	Present	3 pounds		FIELD1
	706-3	DNT	Used	Unknown			ARMY01
		Tetryl	Used	Unknown			ARMY01
		Acids	Used	1974			HIST08
		TNT	Used	1974			ARMY01, HIST08
	801-6	Toluene	Used	1971			AEHA14, DOTA25
	801-7	Toluene	Used	1954, 1955			DOTA14, DOTA15
		Nitrotoluene	Used	1954, 1955			DOTA14, DOTA15
		Sulfuric acid	Used	1954, 1955			DOTA14, DOTA15
		Nitric acid	Used	1954, 1955			DOTA14, DOTA15
	801-9	DNT	Stored	Present	313 pounds		FIELD1
	802-2	Sulfuric acid, fuming	Used	1943			HIST38
		Bi-oil (DNT)	Used	1943			HIST38
	802-6	TNT	Used	1971			AEHA14
		Toluene	Used	1971			AEHA14
		Benzene	Used	1971			AEHA14
		DNT	Used	1971			AEHA14, DOTA25
		Nitrogen dioxide	Used	1971			AEHA14, DOTA25
	802-7	Nitrotoluene	Used	1954-1955			DOTA14, DOTA15
		DNT	Used	1954-1955			DOTA14, DOTA15
		TNT	Used	1954-1955			DOTA14, DOTA15
		Nitric acid	Used	1954-1955			DOTA14, DOTA15
		Sulfuric acid	Used	1954-1955			DOTA14, DOTA15

**EXHIBIT B**

Source:

Enhanced Preliminary Assessment Screening/Environmental Baseline  
Study, Land Transfer to the State of Illinois for Industrial Parks, Sept.  
1997.

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TABLE E-1

CHEMICALS USED, STORED, RELEASED, DISPOSED OF ON  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS  
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Substance	Used, Stored, Released, Disposed	Date	Quantity	Action	Reference
	802-8	DNT	Used	1966	616 pounds		HIST12
	802-9	DNT	Stored	Present			FIEL01
	803-6	Nitrotoluene	Used	1971			AEHA14
		DNT	Used	1971			AEHA14
		TNT	Used	1971			AEHA14
		Nitrogen dioxide	Used	1971	313 pounds		AEHA14
	803-7	Nitrotoluene	Used	1954-1955			AEHA14
		DNT	Used	1954-1955			DOTA14, DOTA15
		Nitric acid	Used	1954-1955			DOTA14, DOTA15
	803-9	DNT	Stored	Present			DOTA14, DOTA15
	806-6	TNT	Used	1971			FIEL01
	806-7	TNT	Used	1954-1955			AEHA14, DOTA25
		Nitric acid	Used	1955			DOTA14, DOTA15
		Sulfuric acid	Used	1955			DOTA15
	806-12	TNT	Used	1958			DOTA15
	808-3	TNT	Used	1971			HIST22
	812-2	Tetranitromethane	Released				AEHA14, DOTA25
	812-3	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-4	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-5	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-6	Sulfuric Acid	Used	1971		Discharge to ditch	UCCI04
		Nitric acid	Used	1971			AEHA14, DOTA25
		Tetranitromethane	Released				AEHA14, DOTA25
	812-7	Nitric acid	Used	1954-1955		Discharge to ditch	UCCI04
		Sulfuric acid	Used	1954-1955			DOTA14, DOTA15
		Tetranitromethane	Released				DOTA14, DOTA15
	812-8	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-9	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-10	Tetranitromethane	Released			Discharge to ditch	UCCI04
			Released			Discharge to ditch	UCCI04
	870-1	TNT	Used	1977			USOP29
	870-2	TNT	Used	1977			USOP29
	870-3	TNT	Used	1977			USOP29
	870-4	TNT	Used	1977			USOP29
	870-5	TNT	Used	1977			USOP29
	870-6	TNT	Used	1977			USOP29
	872-1	Toluene	Used	Unknown			USOP29
		Acids	Used	Unknown			UCCI04
		TNT	Used	Unknown			UCCI04
	872-2	Toluene	Used	Unknown			BEST10
		Acids	Used	Unknown			UCCI04
	872-3	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-5	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-6	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	876-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	876-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	878-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	878-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	879-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04

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TABLE E-1

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CHEMICALS USED, STORED, RELEASED, DISPOSED OF ON  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS  
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Substance	Used, Stored, Released, Disposed	Date	Quantity	Action	Reference
	879-4	Toluene	Used	Unknown			UCCI04
	883-1	Acids	Used	Unknown			UCCI04
	883-2	Waste acid	Used	Unknown			UCCI04
	883-2	Waste acid	Used	Unknown			UCCI04
M7	860-2	Sulfuric acid	Used	1971			AEHA14
	861-1	TNT	Disposed	Unknown		Incinerator	THAM01
	861-2	TNT	Disposed	Unknown		Incinerator	THAM01
	861-3	TNT	Disposed	Unknown		Incinerator	THAM01
	861-4	TNT	Disposed	Unknown		Incinerator	THAM01
	861-5	TNT	Disposed	Unknown		Incinerator	THAM01
	861-6	TNT	Disposed	Unknown		Incinerator	THAM01
M8	302-1-1	Acid	Used				UCCI04
	302-3-1	Nitric acid	Stored	1971			AEHA14
	303-3-1	Nitric acid	Used	1954-1955,			AEHA14, DOTA14,
				1971			DOTA15
		Sulfuric acid	Used	1971			AEHA14
	308-3-6	Sulfuric acid	Used	1971			AEHA14
	354-9	Sulfur	Stored	Present			FIEL01
	1501	Sulfur	Used	1954			UCCI04, DOTA14
		Sulfuric acid, fuming	Stored	1955			DOTA15
	1501-1	Sulfur	Used	Unknown			UCCI04
	1502	Sulfur	Used	Unknown			UCCI04
	1502-1	Sulfur	Used	Unknown			UCCI04
	1502-2	Sulfur	Used	Unknown			UCCI04
M13	503-1-2	Cosmoline 1102	Stored	Present			FIEL01
	812-1	Tetranitromethane	Released			Discharge to ditch	UCCI04
M16	413-1	Lime	Used	1955			DOTA15
		Alum	Used	1955			DOTA15
	716-3	Paint pigments	Used	1955			DOTA15
		Paint Thinner	Used	1955			DOTA15
		Chlorinated hydrocarbons	Used	1955			DOTA15
		Paint	Used	1971			DOTA15
		Paint	Stored	Present	20 gallon		AEHA14
		Oil	Stored	Present	55 gallon		FIEL01
M103	TS-1230	Herbicides	Used	Unknown			USOP52
		Insecticides	Used	Unknown			USOP52
		Ammonia	Used	Unknown			USOP52
M104	411	Chlorine	Stored	1990			UCCI01
	505-2	Chlorine	Stored	1990			UCCI01
	715-12	Benzene	Stored	Unknown			FIEL01
	717	Lead	Used	1971			AEHA14
		Methyl chloroform	Used	1971			AEHA14
		Perchloroethylene	Used	1971			AEHA14
		Stoddard solvent	Used	1971			AEHA14
		Cadmium	Used	1971			DOTA25
		Paints and thinners	Used	1954			DOTA14
		Chlorinated hydrocarbon solvent	Used	1955			DOTA15
		Oils	Used	1955			DOTA15
		Coolants	Used	1955			DOTA15
	718-1	Chlorinated hydrocarbons	Used	1954			DOTA14
		Solvent	Stored	Present	20 gallon		FIEL01
M115	412-1	Fuel oil	Stored	1991	1,000 gallons	Tank removed	BEST02

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
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Date	Location	Quantity and Material Spilled	Reference
August 16, 1954	Toluene Tank Farm	Lightning struck the #10 toluene tank burning the entire contents of the tank. The storage tank and 80,878 gallons of toluene were lost.	HIST48
November 7, 1954	Acid area	A platinum filter on #5 AOP unit ruptured. The cause was determined to be an explosion from accumulation of ammonia salts on the filter media. All platinum filters were subsequently removed from service.	HIST48
April 28, 1966	Center Toluene Tank Farm	The number 6 toluene tank was struck by lightning and burned. Approximately 7,000 gallons of toluene was destroyed.	HIST12
March 17, 1968	Acid # 3	43,500 pounds of oleum was spilled at carspot 407 due to overfilling of a tank car. Water and soda ash were used to neutralize the spill.	UNUR01
December 19, 1969	Acid # 1	74,000 pounds of acid were spilled from an acid line.	HOLM01
December 1, 1970	Acid # 3	1500 pounds, anhydrous ammonia lost due to defective rupture disk and valve packing.	ARMY01
	Acid #1	6,000 pounds of tetryl mix was lost due to transfer line decontamination. Soda ash was used to neutralize.	ARMY01
December 7, 1970	Acid #3	3,000 pounds of 93 percent sulfuric acid sludge was lost due to cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
December 16, 1970	Acid #3	1,500 pounds of anhydrous ammonia was lost due to a blown rupture disk.	ARMY01
June 11, 1971	Central Toluene Farm	A toluene tank was struck by lightning. "The tank was full and did not catch fire." The tank incurred \$8,000 of damage. It is not clear from the history if any toluene was lost.	HIST06, HIST17
July 3, 1971	Acid #3	3,000 pounds of 74 percent sulfuric acid was lost due to a faulty gasket installation. Soda ash was used to neutralize.	ARMY01
July 7, 1971	Acid #1	1,600 pounds of tetryl mix sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
July 8, 1971	Acid #3,	1,100,000 pounds of toluene was lost due to lighting striking tank Number 1.	ARMY01, HIST17
July 14, 1971	Acid #3	1,300 pounds of anhydrous ammonia was lost due to a rupture disk failure.	ARMY01
July 23, 1971	Acid #3	2,048 pounds of F-60 mix was lost due to line leakage. Soda ash was used to neutralize the spill.	ARMY01
August 3, 1971	Acid #3	3,800 pounds of F-60 antifreeze sludge was lost due to cleaning of tank for maintenance. Soda ash was used to neutralize.	ARMY01

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
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Date	Location	Quantity and Material Spilled	Reference
August 5, 1971	Acid #3	967 pounds of ammonia was lost due to rupture disk failure.	ARMY01
	Acid #1	2,250 pounds of strong nitric sludge was lost due tank cleaning for maintenance. Soda ash was used to neutralize the spill.	ARMY01
August 11, 1971	Acid #3	12,000 pounds of ammonia was lost due to ruptured steam coil.	ARMY01
August 13, 1971	Acid #3	1,350 pounds of strong nitric sludge was lost due tank cleaning for maintenance. Soda ash was used to neutralize the spill.	ARMY01
August 14, 1971	North Classification Yard Acid #3	A leak occurred at a fuel oil tank adjacent to building 704-13.  3,800 pounds of 76 percent sulfuric sludge was lost due to tank cleaning for maintenance work. Soda ash was used neutralize.	INCR01  ARMY01
August 19, 1971	Acid #3	1,900 pounds of 93 percent sulfuric sludge was lost due to tank cleaning for maintenance work. Soda ash was used neutralize.	ARMY01
	Acid #3	12,000 pounds of 93 percent sulfuric [acid] was lost due to tank cleaning for maintenance work. Soda ash was used neutralize.	ARMY01
August 21, 1971	Acid #1	55,369 pounds of 93 percent sulfuric [acid] was lost due to operator error.	ARMY01
August 25, 1971	Acid #3	2,500 pounds 93 percent sulfuric sludge was lost due to tank washing for maintenance. Soda ash was used to neutralize.	ARMY01
September 2, 1971	Acid #3	8,324 pounds of F-60 sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
September 3, 1971	Acid #3	8,500 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
September 8, 1971	Shop Area	A nitric acid line leaked at a connection over the railroad north east of Building 715-2.	INCR01
September 13, 1971	Acid #3	11,602 pounds of TNT summer mix was lost due to operator error. Soda ash was used to neutralize.	ARMY01
September 15, 1971	Acid #2	14,000 pounds of 60 percent nitric was lost due to operator error. Soda ash was used to neutralize.	ARMY01

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Date	Location	Quantity and Material Spilled	Reference
September 20, 1971	Acid #3	12,000 pounds of TNT mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
September 22, 1971	Acid #3	12,000 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
September 28, 1971	Acid #3	4,600 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
September 29, 1971	Acid #3	1,000 pounds of tetryl mix was lost due to a leaking line. Soda ash was used to neutralize.	ARMY01
September 30, 1971	Acid #3	28,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
October 4, 1971	Acid #3	1,200 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01
October 5, 1971	Acid #3	1,600 pounds of 93 percent sulfuric sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
October 7, 1971	Acid #3	5,000 pounds of 93 percent sulfuric sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
October 8, 1971	Acid #2	4,000 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
October 12, 1971	Acid #3	4,000 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
October 15, 1971	Acid #3	50,000 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
October 21, 1971	Acid #1	12,000 pounds of 93 percent sulfuric sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
	Acid #3	2,000 pounds of 93 percent sulfuric sludge was lost due to tank washing for maintenance. Soda ash was used to neutralize.	ARMY01
	Acid #1	18,000 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize	ARMY01



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Date	Location	Quantity and Material Spilled	Reference
October 22, 1971	Acid #3	3,000 pounds of 74 percent sulfuric sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
October 26, 1971	Acid #1	29,647 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
October 28, 1971	Acid #3	4,000 pounds of 68 percent sulfuric sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01
October 29, 1971	Acid #3	3,500 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01
January 3, 1972	Acid #3	1,800 pounds of strong mix sludge was lost due to tank washing for maintenance. Soda ash was used to neutralize.	UCCI09
January 10, 1972	Acid #3	600 pounds of toluene was lost at car spot 411 due to steam cleaning.	UNUR01
January 12, 1972	Acid #3	500 pounds of ammonia was lost at tank 106 (H.P. ammonia storage) due to blown rupture disc.	UNUR01
	Acid #3	11,000 pounds of 93 percent sulfuric sludge was lost at tank 612 due to washing for maintenance. Soda ash was used to neutralize.	UCCI09
January 18, 1972	Acid #1	81,612 pounds of 93 percent sulfuric acid was lost at tank 551 (near building 704-7) due to operator error. Soda ash was used to neutralize and flush ditch.	UCCI09, UNUR01, INCR01
January 19, 1972	Acid #3	2,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
January 27, 1972	Acid #3	1,500 pounds of 74 percent sulfuric was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
January 30, 1972	Acid #3	1,157 pounds of ammonia was lost from tank 106 due to blown rupture discs.	UCCI09
February 2, 1972	Acid #3	500 pounds of 74 percent residual was lost to the ground at the NAC building due to a line rupture.	UNUR01
	Acid #3	1,000 pounds of winter TNT mix was lost at the 702 circulator due to equipment failure. Soda ash was used to neutralize.	UCCI09

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Date	Location	Quantity and Material Spilled	Reference
February 8, 1972	Acid #3	100,000 pounds (approximately) of was lost from 12A bulk storage due to over-pumping. Most of the overflow entered drain. Soda ash was used to neutralize.	UNUR01
February 10, 1972	Acid #3	1,500 pounds of TNT mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
February 16, 1972	Acid #3	2,500 pounds of tetryl mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
February 21, 1972	Acid #3	1,000 pounds of DNT mix was lost due to tank cleaning. Soda ash was used to neutralize.	UCCI09
February 22, 1972	Acid #3	2,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
	Acid #3	2,000 pounds of 93 percent sulfuric acid was lost from tank 552 due to operator error. Soda ash was used to neutralize.	UCCI09, UNUR01
March 1, 1972	Acid #3	22,000 pounds of anhydrous ammonia were lost due to blown rupture disc, and leaking packing glands.	UNUR01
March 17, 1972	Acid #3	1,500 pounds of ammonia was lost due to a blown rupture disc.	UNUR01
March 24, 1972	Acid #3	10,000 pounds of sulfuric acid sludge was lost from tank 408 due to cleaning and decontamination for maintenance. Soda ash was used to neutralize.	UNUR01
	Acid #3	1,100 pounds of 93 percent sulfuric sludge was lost at car spot 410 due to washing and decontamination of a tanker car. Soda ash was used to neutralize.	UNUR01
March 28, 1972	Acid #3	1,400 pounds of 93 pounds of sulfuric sludge was lost at car spot 410 due to washing and decontamination of a tanker car. Soda ash was used to neutralize.	UNUR01
March 29, 1972	Acid #3	1,900 pounds of 93 pounds of sulfuric sludge was lost at car spot 410 due to washing and decontamination of a tanker car. Soda ash was used to neutralize.	UNUR01
March 31, 1972	Acid #3	23,300 pounds of anhydrous ammonia was lost from ammonia storage and A.O.P. due to normal losses from draining of lines for repair, blowing of vaporizers, unloading, and other unavoidable losses.	UNUR01
April 2, 1972	Acid #3	1,000 pounds of anhydrous ammonia was lost at building 301-3-3 due to failure of packing in a valve.	UNUR01

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Date	Location	Quantity and Material Spilled	Reference
April 6, 1972	Acid #3	13,046 pounds of oleum was lost at the west end of Acid Transfer Road due to a leak in a transfer line. Soda ash was used to neutralize.	UNUR01
April 26, 1972	Acid #3	10 pounds of 93 percent sulfuric acid was lost at the 93 percent truck loading spot.	UNUR01
April 27, 1972	Acid #3	4,000 pounds of 93 percent sulfuric acid was lost at sales tank 803 due to tank overfilling.	UNUR01
May 1 to 31, 1972	Acid #3	22,000 pounds of anhydrous ammonia was lost from ammonia storage and A.O.P. due to normal losses from draining of lines for repair, blowing of vaporizers and filters, unloading of tank cars, and other unavoidable losses.	UNUR01
May 2, 1972	Acid #3	5,000 pounds of 93 percent sulfuric acid was lost due to washing and decontamination of 6-inch transfer line from Acid #1 to Acid #3 areas. Soda ash was used to neutralize.	UNUR01
May 5, 1972	Acid #3	5,000 pounds of 74 percent N.A.C. residuals was lost due to washing and decontamination of 6-inch transfer line from Acid #1 to Acid #3 areas. Soda ash was used to neutralize.	UNUR01
May 8, 1972	Acid #3	1,500 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and decontaminating. Soda ash was used to neutralize.	UNUR01
May 9, 1972	Acid #3	600 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and decontaminating. Soda ash was used to neutralize.	UNUR01
May 11, 1972	Acid #3	2,000 pounds of mixed acid sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 12, 1972	Acid #3	1,800 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 12, 1972	Acid #3	200 pounds of toluene was lost at car spot 410 due to rail car steam cleaning.	UNUR01
May 12, 1972	Acid #3	1,100 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01

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Date	Location	Quantity and Material Spilled	Reference
May 15, 1972	Acid #3	900 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 16, 1972	Acid #3	1,700 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 17, 1972	Acid #3	2,200 pounds of 93 percent sulfuric sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 19, 1972	Acid #3	1,400 pounds of F60 was lost at car spot 410 due to rail car washing and decontaminating. Soda ash was used to neutralize.	UNUR01
June 2, 1972	Acid #3	5,000 pounds of 93 percent sulfuric acid was lost due to transfer line decontamination. Soda ash was used.	ARMY01
June 5, 1972	Acid #1	64,000 pounds of 93 percent sulfuric acid sludge was lost due to storage tank decontamination. Soda ash was used.	ARMY01
June 5, 1972	Acid #3	5,000 pounds of 74 percent sulfuric acid was lost due to transfer line decontamination. Soda ash was used.	ARMY01
June 7, 1972	Acid #3	2,500 pounds of tetryl mixed acid was lost at car spot 410 due to tank car decontamination for maintenance. Soda ash was used.	ARMY01, UNUR01
June 13, 1972	North Classification Yard	Ammonia car was leaking at dome. Car moved to Acid #3 and unloaded.	UNUR01
June 22, 1972	Acid #3	8,000 pounds of 74 percent sulfuric acid sludge was lost due to storage tank decontamination for maintenance. Soda ash was used.	ARMY01
June 26, 1972	Acid #1	9,500 pounds of 60 percent nitric acid was lost due to storage tank decontamination. Soda ash was used.	ARMY01
June 27, 1972	Acid #1	70,000 pounds of 93 percent sulfuric acid sludge was lost due to storage tank decontamination. Soda ash was used.	ARMY01
July 18, 1972	Acid #3	4,000 pounds of F60 was lost at tank 551 due to washing. Soda ash was put in drain to neutralize.	UNUR01
July 19, 1972	Acid #3	52,910 pounds of TNT mix was lost due to overflow of TNT mix tank 706. Soda ash was used to neutralize.	UNUR01

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Date	Location	Quantity and Material Spilled	Reference
	Acid #3	1,600 pounds of 93 percent sulfuric acid was lost at clear car spot 410 due to washing of two tank cars. Water (30,000 pounds) and soda ash (10,000 pounds) was used to dilute washings from each car.	UNUR01
July 29, 1972	Acid #3	10,000 pounds of 93 percent sulfuric acid was lost from tank 519 due to a popped rivet. Soda ash was used to neutralize.	UNUR01
August 5, 1972	Acid #3	37,500 pounds of 74 percent sulfuric acid sludge was lost at tank 618 due to cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
August 10, 1972	Acid #3	1,200 pounds of strong nitric acid was lost at car spot 413 due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09
August 14, 1972	Acid #1	5,000 pounds of strong nitric acid was lost at 300 tank due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09, UNUR01
	Acid #3	1,100 pounds of sulfuric acid was lost at car spot 410 due to washing and neutralizing of a tank car. Soda ash was used to neutralize.	UCCI09, UNUR01
August 15, 1972	Acid #3	1,000 pounds of oleum was lost at tank 404 due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09
	Acid #3	2,000 pounds of sulfuric acid sludge was lost due to tank washing. Soda ash was used to neutralize.	UCCI09
August 18, 1972	Acid #2	2,000 pounds of TNT mix was lost due to washing of the transfer line from Acid #2 to TNT #4. Soda ash was used to neutralize.	UCCI09, UNUR01
August 19, 1972	Acid #3	1,500 pounds of oleum (O.V.) was lost at tank 403 due to washing. Soda ash was used to neutralize.	UCCI09, UNUR01
August 22, 1972	Acid #3	2,500 pounds of ammonia was lost at sphere 101 due to a blown rupture disc.	UCCI09, UNUR01
August 23, 1972	Acid #3	4,700 pounds of 93 percent acid sludge was lost at tank 620 due to washing. Soda ash was used to neutralize.	UCCI09
August 25, 1972	Acid #3	8,000 pounds of tetrahy was lost at tank 754 due to washing for maintenance. Soda ash was used to neutralize.	UCCI09
August 29, 1972	Acid #3	1,500 pounds of strong nitric acid residue was lost at tank 619 due to leakage. Soda ash was used to neutralize.	UCCI09

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Date	Location	Quantity and Material Spilled	Reference
September, 1972	Acid #3	40,840 pounds of anhydrous ammonia was lost from ammonia storage and AOP due to normal loss from draining lines, blowing vaporizers and filters, unloading tank cars, and other unavoidable losses.	UNUR01
September 6, 1972	Acid #3	21,000 pounds of 74 percent sulfuric sludge was lost at tank 619 due to washing and neutralizing. Soda ash was used to neutralize.	UNUR01
	Acid #3	3,000 pounds of O.V. was lost at car spot 410 due to tanker car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
September 22, 1972	Acid #3	1,800 pounds of TNT mix was lost at car spot 410 due to tanker car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
	Acid #3	900 pounds of 64 percent nitric was lost at car spot 410 due to tanker car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
September 29, 1972	Acid #3	9,000 pounds of tetryl mix sludge was lost a tank 752 due to tank washing and neutralizing. Soda ash was used to neutralize.	UNUR01
September 30, 1972	Acid #3	4,458 pounds of tetryl mix was lost due to tank 750 overflowing. Soda ash was used to neutralize. Separate report indicates loss was of TNT mix.	UNUR01
October, 1972	Acid #3	50,650 pounds of anhydrous ammonia was lost from ammonia storage and AOP due to normal loss from draining lines, blowing vaporizers and filters, unloading tank cars, and other unavoidable losses.	UNUR01
October 2, 1972	Acid #3	17,000 pounds of 93 percent sulfuric sludge was lost from tank 801 due to washing and neutralizing of tank for maintenance. Soda ash was used to neutralize.	UNUR01
October 10, 1972	Acid #3	2,500 pounds of O.V. was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01
October 12, 1972	Acid #3	1,800 pounds of sulfuric sludge (?) was lost at car spot 410 due to tanker washing and decontamination. Soda ash was used to neutralize.	UNUR01
October 13, 1972	Acid #3	1,800 pounds of 93 percent sulfuric sludge was lost at car spot 410 due to tanker washing and decontamination. Soda ash was used to neutralize.	UNUR01

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Date	Location	Quantity and Material Spilled	Reference
October 19, 1972	Acid #3	119,608 pounds of 93 percent sulfuric sludge was lost at tank 520 due to washing and cleaning for maintenance. Soda ash was used to neutralize.	UNUR01
	Acid #3	1,000 pounds of F80 was lost at car spot 410 due to tanker washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
October 27, 1972	Acid #3	9,000 pounds of TNT mix sludge was lost at tank 709 due to tanker washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
October 30, 1972	Acid #3	32,000 pounds of 93 percent sulfuric sludge was lost at tank 512 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
November 1, 1972	Acid #3	2,400 pounds of O.V was lost at car spot 410 due to tanker washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
November 7, 1972	Acid #3	7,200 pounds of sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01
November 8, 1972	Acid #3	6,000 pounds of sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01
November 9, 1972	Acid #3	6,000 pounds of sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01
November 10, 1972	Acid #3	29,759 pounds of 93 percent sulfuric sludge was lost from tank 803 due to washing and neutralizing. Soda ash was used to neutralize.	UNUR01
	Acid #3	3,700 pounds of 68 percent TNT residual was lost from tank 611 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
November 11, 1972	Acid #3	12,000 pounds of tetryl mix was lost from tank 750 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
November 13, 1972	Acid #3	12,000 pounds of 74 percent sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01

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November 14, 1972	Acid #3	3,600 pounds of sulfuric sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01
November 20, 1972	Acid #3	2,000 pounds of TNT residual was lost due to washing and decontamination of TNT residual line from Acid #3 to TNT #6. Soda ash was used to neutralize.	UNUR01
December 12, 1972	Acid #3	5,000 pounds of 74 percent sulfuric acid was lost at tub 607 in the NAC building due to failure of the cooling coil. Acid was drained to the sewer with soda ash.	UNUR01
December 15, 1972	Acid #3	3,500 gallons of soda ash was lost to Grant Creek when an automatic control valve on tank opened due to a malfunctioning pH meter.	UNUR01
December 19, 1972	Acid #3	3,600 pounds of 68 percent sulfuric sludge was lost from tank 613 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
December 31, 1972	Acid #3	Ammonia was lost from tank 112 due to blown rupture disc.	UNUR01
February 5, 1973	Acid #3	2,400 pounds of tetryl mix was lost at car spot 412 1/2 due to overfilling.	UNUR01
May 8, 1973	Acid #3	3,500 pounds of tetryl mix was lost at car spot 411 1/2 due to operator error. Soda ash was used to neutralize.	UNUR01
May 13, 1973	Oleum Plant	There was a pile of sulfur on south side of building 1502-2 going west to a ditch 5 feet x 1 foot x 10 feet, 300-400 feet, 30 feet by 30 feet.	INCR01
May 24, 1973	Acid #3	126,000 pounds of TNT mix was lost at tank 709 due to operator error. Soda ash was used to neutralize.	UNUR01
June 5 1973	Acid #1	35,885 gallons of TNT Mix Acid was lost due to rupture of 32-year old tank (808). 18,000 gallons of 20% soda were used to neutralize.	SPIL01
June 6, 1973	Acid #1	Acid was lost from tank 808 resulting fumes disrupted activities at 704-7, 413, 704-19, 717, tetryl area, and TNT areas for over four hours. Volume lost not reported. Soda ash was used to neutralize.	UNUR01
June 12, 1973	Acid #1	TNT mix was lost from tank 710 due to holes in the tank. Soda ash was applied to the area north of the tank, Grant Creek, and at TSL248.	UNUR01
August 1, 1973	Acid #3	1,000 pounds of TNT mix was lost due to decontamination. Soda ash was used to neutralize.	SPIL02
August 6, 1973	Acid #3	1,200 pounds of oleum sludge was lost due to decontamination. Soda ash was used	SPIL02



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August 7, 1973	Acid #2	13,900 pounds of TNT sludge was lost due to decontamination. Soda ash used.	SPIL02
	Acid #3	1,200 pounds of oleum was lost due to decontamination. Soda ash was used	SPIL02
August 9, 1973	Acid #3	1,200 pounds of oleum was lost due to tank car cleaning. Soda ash was used	SPIL02
August 9, 1973	Acid #1	7,000 pounds of Oleum was lost due to equipment failure. Soda ash was used to decontaminate	SPIL02
August 10, 1973	Acid #1	2,830 pounds of Ammonia was lost from tank 116 due to a blown rupture disc.	UNUR01, SPIL02
August 13, 1973	Acid #2	11,000 pounds of sulfuric acid was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02
	Acid #3	1,000 pounds of sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	
August 14, 1973	Acid #3	1,200 pounds was oleum sludge was lost due to tank car cleaning. Soda ash was used to decontaminate.	SPIL02
August 21, 1973	Acid #3	1,000 pounds of sulfuric acid was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02
August 23, 1973	Acid #2	9,000 pounds of sulfuric sludge was lost due to tank cleaning. Soda ash was used.	SPIL02
August 24, 1973	Acid #2	58,000 pounds of T-mix was lost due to decontamination of production facilities. Soda ash was used to decontaminate.	SPIL02
August 27, 1973	Acid #3	11,000 pounds of tetryl mix was lost due to tank cleaning. Soda ash was used to decontaminate	SPIL02
August 28, 1973	Acid #3	17,000 pounds of tetryl mix sludge was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02
August 29, 1973	Acid #2	6,885 pounds of tetryl mix sludge was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02
August 30, 1973	Acid #2	9,000 pounds of sulfuric sludge was lost due to tank washing. Soda ash was used.	SPIL02
October 14, 1973	Acid #2	A "bad" leak of 93 percent sulfuric acid occurred at tank 801 following a series of errors. Soda ash was used to neutralize.	UNUR01
November 6, 1973	Building 717	Mercury was blown from a manometer at the east bench of the instrument shop (Building 717) and sprayed the area. Area was washed.	UNUR01.

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
December 14, 1973	Acid #3	3200 gallons of #2 fuel oil was lost into Jackson Creek and the Des Plaines River due to a ruptured storage tank outlet valve. Straw was used as a sorbent and valve was replaced.	JAAP01, HIST09, SPIL03
December 15, 1973	Center Toluene Farm	A leak was discovered at bulk storage tank #8 when the U.S. Coast Guard called concerning an oil slick on the Des Plaines River. A leaking valve was blocked and gravel was placed in the ditch to prevent further seepage to Jackson Creek. Oil in the moat was allowed to seep into the ground.	UNUR01
December 27, 1973	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost due to cleaning of storage tank 620. Soda ash was used to neutralize.	UNUR01, SPIL03
January 9, 1974	Acid #1	5,600 pounds of 98 percent nitric acid was lost at tank 300 in the strong acid mix area due to overfilling. Soda ash was used to neutralize.	UNUR01
January 16, 1974	Acid #3	10,058 pounds of ammonia was lost from storage tank 111 due to a blown rupture disc.	UNUR01
January 18, 1974	Acid #3	1600 pounds of 98 percent sulfuric acid was lost from tank 408. Soda ash was used to neutralize.	UNUR01
January 29, 1974	Acid #3	1,800 pounds O.V. was lost from a tank car at car spot 410 during maintenance. Soda ash was used to neutralize.	UNUR01
	Acid #1	14,081 pounds of 100 percent nitric acid was lost when water coils inside of NAC tubs 603 and 604 broke. Soda ash was used to neutralize and then the tubs were drained to the sewer.	UNUR01
February 3, 1974	Acid #3	44,061 pounds of 93 percent sulfuric acid was lost from tank 805. Soda ash was used to neutralize.	UNUR01, SPIL04
February 8, 1974	Acid #3	1,000 pounds of sulfuric acid sludge was lost from 612 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04
	Acid #4	16,000 pounds of O.V. sludge was lost from tank 801 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04
February 12, 1974	Acid #3 (center Toluene Farm)	3,200 pounds of toluene was lost due to initial charging and flushing of a new toluene transfer line from the center toluene farm to the TNT #7 storage area.	UNUR01, SPIL04
February 14, 1974	Acid #3	350 pounds 74 percent sulfuric acid was lost at the sales truck spot. Water was used to wash down the area.	UNUR01

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
February 17, 1974	Acid #3	57,568 pounds of TNT mix was lost TNT mix tank 740 due to over-pumping. Soda ash was used to neutralize.	UNUR01, SPIL04
February 20, 1974	Acid #3	2,760 pounds of 68 percent sulfuric acid was lost from tank 613 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04
February 25, 1974	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost from tank 620 during cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04
March 8, 1974	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost from tank 622 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01
March 23, 1974	Acid #1	3,230 pounds of 93 percent sulfuric acid was lost from tank 403 at valve.	UNUR01
April 26, 1974	Acid #3	4,055 pounds of ammonia was lost from high pressure storage tank 109 due to blown rupture discs.	UNUR01
May 13, 1974	Oleum Plant	Sulfur was noted covering an area about 150 by 30 feet starting at Building 1502-2 and extending west to the ditch. A pile of sulfur was also present on the south side of 1502--2 on a concrete slab. Sulfur is also present where rail cars are unloaded and about 60 feet north of 605-3-2 (covering about 50 by 75 feet).	INCR01
May 21, 1974	Acid #3	10,000 pounds of F-60 sludge was lost from tank 718 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL05
May 28 1974	Acid # 1	9,385 pounds of nitric acid crystals and sludge were lost due to maintenance purposes. Soda ash was used to neutralize.	SPIL05
May 29, 1974	Acid #1	1,100 pounds of nitric crystals and sludge was lost from tank 701 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL05
May 30, 1974	Acid #1	9,385 pounds of strong nitric crystals and sludge was lost from 300 and 700 tanks due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL05
May 31, 1974	Acid #4	Rupture of an underground waste water line flushed oil residues from the ground at fuel oil unloading spot into a drainage ditch causing an oil sheen. Water line was repaired and oil retention materials were distributed in the ditch.	UNUR01

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**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
June 11 & 12, 1974	Acid #1	15" of strong nitric acid sludge was lost from tank 301 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01
June 20 & 21, 1974	Acid #3	6" of strong nitric acid sludge was lost from tank 706 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 8, 1974	Acid #1	5" of strong nitric acid sludge was lost from tank 709 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 9, 1974	Acid #1	4,362 pounds of TNT mix sludge was lost from tank 706 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 11, 1974	Acid #2	2,850 pounds of weak nitric acid was lost at tank 204 due to operator error. Drainage ditch was blocked to prevent migration to public waters. Soda ash was used to neutralize.	UNUR01
August 12, 1974	Acid #1	3,121 pounds of TNT mix sludge was lost from tank 707 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 15, 1974	Acid #1	1,123 pounds of TNT mix sludge was lost from tank 706 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 16, 1974	Acid #1	4,362 pounds of TNT summer mix sludge was lost from tank 705 due to cleaning. Soda ash was used to neutralize.	UNUR01
August 26, 1974	Acid #1	44,730 pounds of weak nitric acid was lost from 209 and 210 tanks.	UNUR01
September 6, 1974	Acid #1	12,723 pounds of sulfuric acid sludge was lost from tank 802 due to cleaning. Soda ash was used to neutralize.	UNUR01
	Acid #1	12,723 pounds of sulfuric acid sludge was lost from tank 801 due to cleaning. Soda ash was used to neutralize.	UNUR01
September 13, 1974	Acid #1	42,410 pounds of 93 percent sulfuric acid sludge was lost from tank 805 due to cleaning. Soda ash was used to neutralize.	UNUR01
September 24, 1974	Acid #1	42,410 pounds of 93 percent sulfuric acid sludge was lost from tank 804 due to cleaning. Soda ash was used to neutralize.	UNUR01
September 25, 1974	Acid #1	33,928 pounds of 93 percent sulfuric acid sludge was lost from tank 806 due to cleaning. Soda ash was used to neutralize.	UNUR01
September 30, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid residuals was lost from tank 401 due to cleaning. Soda ash was used to neutralize.	UNUR01

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
October 1, 1974	Acid #1	21,205 pounds of 93 percent sulfuric acid residuals was lost from tank 403 due to cleaning. Soda ash was used to neutralize.	UNUR01
October 2, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid residuals was lost from tank 405 due to cleaning. Soda ash was used to neutralize.	UNUR01
October 9, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid sludge was lost from tank 501 due to cleaning. Soda ash was used to neutralize.	UNUR01
October 10, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid sludge was lost from tank 502 due to cleaning. Soda ash was used to neutralize.	UNUR01
November 14, 1974	Acid #4	4,000 pounds of anhydrous ammonia was discharged in order to perform service on line.	UNUR01
November 16, 1974	Acid #3	39,380 pounds of 74 percent residual was lost at tank 604 riser spool. Soda ash was used to neutralize.	UNUR01
December 26, 1974	Acid #3	496 gallons of #2 fuel oil was lost at the fuel oil spot due to operator error. Straw was spread to absorb the oil.	UNUR01, SPIL06
April 21, 1975	Acid #3	There were two acid leaks, north east and northwest of tank 409	INCR01
May 22, 1975	Acid #2	Strong nitric acid was lost at car spot 207 due to overfilling of a tank car. Volume lost is unknown. Soda ash was used to neutralize.	UNUR01
May 28, 1975	Acid #1	9,385 pounds of strong nitric crystals and sludge was lost from tanks 302 and 702 due to cleaning. Soda ash was used to neutralize.	UNUR01
June 10, 1975	Acid #3	There was an acid leak at the man hole of tank 404.	INCR01
June 19, 1975	Acid #4	All attempts at commissioning the direct strong nitric acid unit were suspended until August as leaks had developed in the storage tanks which could not be readily repaired.	HIST11
September 10, 1975	Acid #3	240 gallons of #2 fuel oil was discharged to Goose Creek when a rubber fitting ruptured on feed to SAC unit. Straw, sorbent booms, and pumps were used to clean up spill.	UCCI09

**SUMMARY OF SIGNIFICANT SPILLS ON JOAAP  
PROPERTY TO BE TRANSFERRED TO STATE OF ILLINOIS**  
(Source - Enhanced Preliminary Assessment Screening, September 1997)  
Revised - October 1998

Date	Location	Quantity and Material Spilled	Reference
March, 1980		An oil spill from the drum storage area affected Goose Creek. Plant personnel were able to prevent off-site migration.	HIST32

**Note:** The summary presented in the table includes all of the significant spill reports found. However, not all of the monthly reports were found. Monthly spill reporting was discontinued in March 1976 and was then done as spills occurred.

R2002045744

R2003086458

**MARY ANN STUKEL  
WILL COUNTY RECORDER  
AFFIDAVIT OF METES AND BOUNDS**

KENTUCKY  
STATE OF ~~ILLINOIS~~ )  
COUNTY OF ~~WILL~~ JEFFERSON ) SS

BERT L. BALDES

being duly sworn on oath, states that ~~affiant~~

that the attached deed is not in violation of Section 1 of the Plat Act [765 ILCS 205/1] for one of the following reasons:

1. The division or subdivision of land into parcels or tracts of 5.0 acres or more in size which does not involve any new streets or easements of access.
2. The division of lots or blocks of less than one (1) acre in any recorded subdivision which does not involve any new streets or easements of access.
3. The sale or exchange of parcels of land between owners of adjoining and contiguous land.
4. The conveyance of parcels of land or interests therein for use as right of way for railroads or other public utility facilities and other pipe lines which does not involve any new streets or easements of access.
5. The conveyance of land owned by a railroad or other public utility which does not involve any new streets or easements of access.
6. The conveyance of land for highway or other public purposes or grants or conveyances relating to the dedication of land for public use or instruments relating to the vacation of land impressed with a public use.
7. Conveyances made to correct descriptions in prior conveyances.
8. The sale or exchange of parcels or tracts of land following the division into no more than two (2) parts of a particular parcel or tract of land existing on July 17, 1959 and not involving any new streets or easements of access.
9. The sale of a single lot of less than 5.0 acres from a larger tract when a survey is made by an Illinois Registered Land Surveyor; provided, that this exemption shall not apply to the sale of any subsequent lots from the same larger tract of land, as determined by the dimensions and configuration of the larger tract on October 1, 1973, and provided also that this exemption does not invalidate any local requirements applicable to the subdivision of land.
10. This conveyance is of land described in the same manner as title was taken by grantor(s).

**CIRCLE NUMBER ABOVE WHICH IS APPLICABLE TO ATTACHED DEED.**

AFFILANT further states that affiant makes this affidavit for the purpose of inducing the Recorder of Deeds of Will County, Illinois, to accept the attached deed for recording.

SUBSCRIBED AND SWORN TO BEFORE ME

This 26th day of FEB 2002

Robert A. Rush

Notary Public

STATE AT LARGE, KENTUCKY



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R2002045744

R2003086458

STATE OF ILLINOIS     )  
                                  ) SS  
COUNTY OF COOK     )

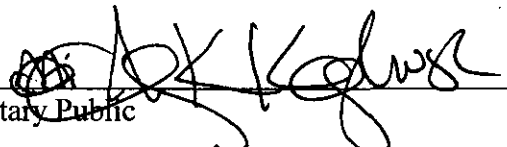
**PLAT ACT AFFIDAVIT**

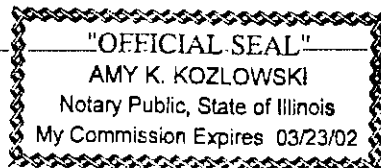
Michael M. Mullen, as President of CenterPoint Properties Trust, a Maryland real estate investment trust, the manager of CenterPoint Intermodal LLC, an Illinois limited liability company, being duly sworn on oath, states that his address is 1808 Swift Road, Oak Brook, Illinois 60523 and that the attached deed is not in violation of Section 1 of Chapter 109 of the Illinois Revised Statutes because the transfer involves the division of subdivision of land into parcels or tracts of 5 acres or more in size which does not involve any new streets or easements or access.

Affiant further states that he makes this affidavit for the purpose of inducing the Recorder of Deeds of Will County, Illinois, to accept the attached deed for recording.

  
\_\_\_\_\_  
Michael M. Mullen

SUBSCRIBED AND SWORN to before me  
this 6<sup>th</sup> day of March, 2002.

  
\_\_\_\_\_  
Notary Public



MARY ANN STUKEL

42P

Will County Recorder

Will County

Re: R 2003086458

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KLH Date 04/15/2003

Time 09:20:18

Recording Fees:

56.00



PARCEL A - TRACT M5

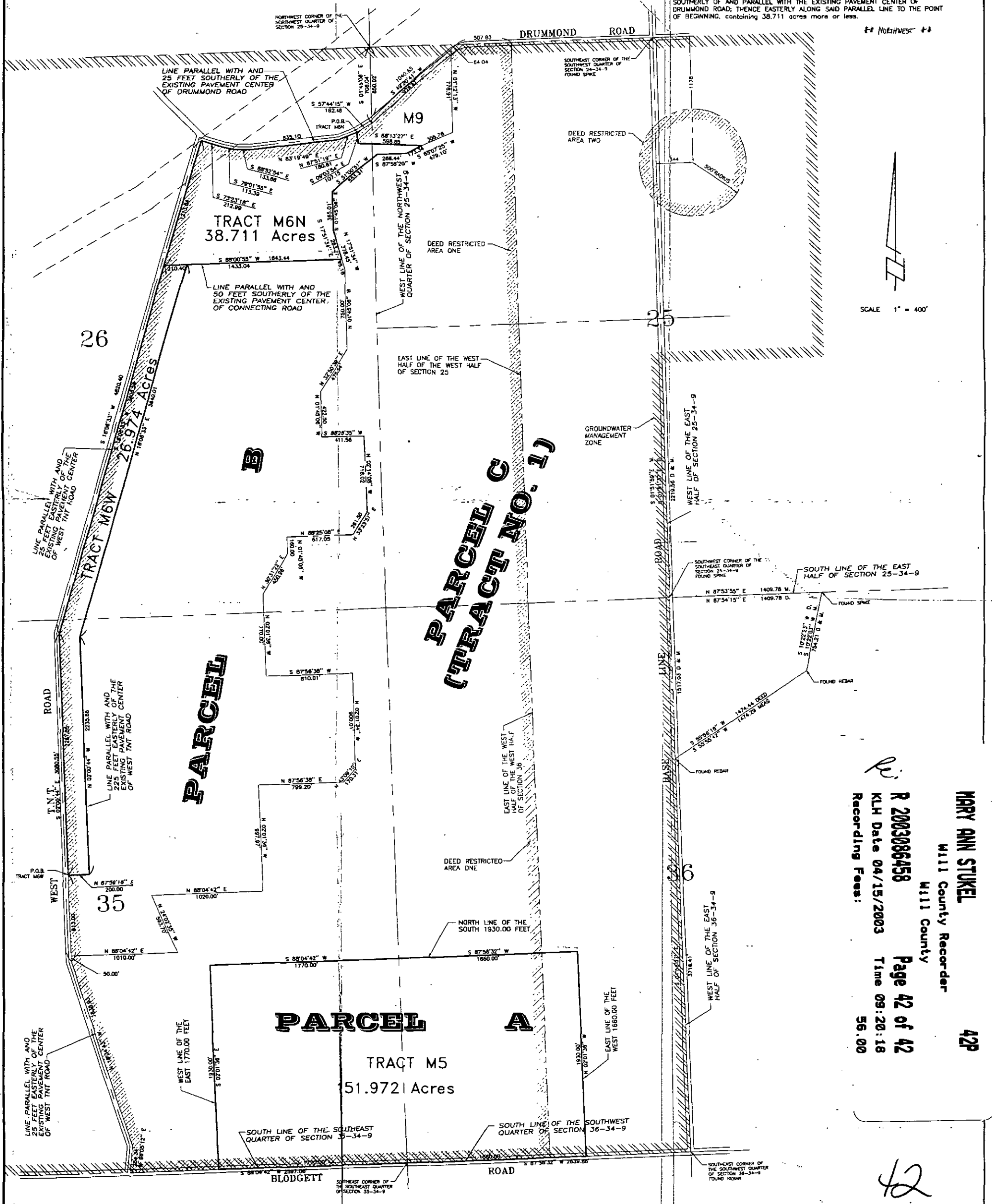
THE EAST 1770.00 FEET OF THE SOUTH 1930.00 FEET OF THE SOUTHEAST QUARTER OF SECTION 35; ALSO THE WEST 1660.00 FEET OF THE SOUTH 1930.00 FEET OF THE SOUTHWEST QUARTER OF SECTION 36; ALL IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, WILL COUNTY, ILLINOIS, containing 151.972 acres more or less.

PARCEL B - TRACT M6W

THAT PART OF SECTIONS 26 AND 35 IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: COMMENCING AT THE INTERSECTION OF THE SOUTH LINE OF AFORESAID SECTION 35 WITH A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTH 06 DEGREES 05 MINUTES 12 SECONDS EAST ALONG SAID PARALLEL LINE 254.34 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 18 DEGREES 04 MINUTES 43 SECONDS WEST 1830.93 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 2 DEGREES 00 MINUTES 44 SECONDS WEST 813.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 87 DEGREES 59 MINUTES 16 SECONDS EAST TO A LINE PARALLEL WITH AND 225 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTH 2 DEGREES 00 MINUTES 44 SECONDS WEST ALONG SAID PARALLEL LINE 2235.66 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 16 DEGREES 06 MINUTES 33 SECONDS EAST 3640.01 FEET TO THE INTERSECTION WITH A LINE PARALLEL WITH AND 50 FEET SOUTHERLY OF THE EXISTING PAVEMENT CENTER OF CONNECTING ROAD; THENCE SOUTH 88 DEGREES 00 MINUTES 55 SECONDS WEST ALONG SAID PARALLEL LINE 210.40 FEET TO THE INTERSECTION WITH A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE SOUTH 16 DEGREES 06 MINUTES 33 SECONDS WEST ALONG SAID PARALLEL LINE 3606.56 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE SOUTH 2 DEGREES 00 MINUTES 44 SECONDS EAST 2267.55 FEET TO THE POINT OF BEGINNING; containing 128.9738 acres more or less.

PARCEL B - TRACT M6N

THAT PART OF THE NORTHWEST QUARTER OF SECTION 25 AND PART OF THE NORTHWEST QUARTER OF SECTION 26, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: COMMENCING AT THE ~~NORTHWEST~~ CORNER OF SAID NORTHWEST QUARTER OF SECTION 25; THENCE SOUTH 1 DEGREE 45 MINUTES 06 SECONDS EAST ALONG THE WEST LINE OF SAID NORTHWEST QUARTER 708.04 FEET TO A LINE PARALLEL WITH AND 25 FEET SOUTHERLY OF THE EXISTING PAVEMENT CENTER OF DRUMMOND ROAD; THENCE SOUTH 57 DEGREES 44 MINUTES 15 SECONDS WEST ALONG SAID PARALLEL LINE 162.48 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 9 DEGREES 03 MINUTES 54 SECONDS EAST 107.15 FEET; THENCE SOUTH 88 DEGREES 13 MINUTES 27 SECONDS EAST 598.85 FEET TO A POINT ON THE WESTERLY LINE OF TRACT NO. 1 OF EXHIBIT B IN QUIT CLAIM DEED RECORDED AS DOCUMENT R2000-86264; THENCE ALONG SAID WESTERLY LINE SOUTH 65 DEGREES 07 MINUTES 25 SECONDS WEST 173.34 FEET, SOUTH 87 DEGREES 58 MINUTES 20 SECONDS WEST 266.44 FEET, SOUTH 51 DEGREES 00 MINUTES 51 SECONDS WEST 553.31 FEET, SOUTH 1 DEGREE 45 MINUTES 06 SECONDS EAST 365.01 FEET, AND SOUTH 17 DEGREES 51 MINUTES 34 SECONDS EAST 283.27 FEET TO THE INTERSECTION WITH A LINE PARALLEL WITH AND 50 FEET SOUTHERLY OF THE EXISTING PAVEMENT CENTER OF CONNECTING ROAD; THENCE SOUTH 88 DEGREES 00 MINUTES 55 SECONDS WEST ALONG SAID PARALLEL LINE 1643.44 FEET TO A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTHERLY ALONG SAID PARALLEL LINE TO THE INTERSECTION WITH A LINE 25 FEET SOUTHERLY OF AND PARALLEL WITH THE EXISTING PAVEMENT CENTER OF DRUMMOND ROAD; THENCE EASTERLY ALONG SAID PARALLEL LINE TO THE POINT OF BEGINNING, containing 38.711 acres more or less.



MARY ANN STUKEL  
Will County Recorder  
42P  
R 2003086458  
KLH Date 04/15/2003  
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Time 09:20:18  
Recording Fees: 56.00

**Attachment 34**

Reference Document 5

QUIT CLAIM DEED OF CONVEYANCE  
WITH LAND USE RESTRICTIONS AND  
COVENANTS AND GROUNDWATER  
RESTRICTIONS AND COVENANTS

1411  
01205 WL  
R

MARY ANN STUKEL

Will County Recorder  
Will County

28P

R 2004025145

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RAD Date 02/13/2004

Time 09:46:56

Recording Fees:

42.00

This QUIT CLAIM DEED OF CONVEYANCE (hereinafter "Deed") is made and entered into by and between the UNITED STATES OF AMERICA (the "GRANTOR"), acting by and through the Deputy Assistant Secretary of the Army (I & H) pursuant to a delegation of authority from the SECRETARY OF THE ARMY (the "Army"), under and pursuant to the powers and authorities contained in the provisions of Section 2923 of the National Defense Authorization Act For Fiscal Year 1996, Public Law No. 104-106, Division B, Title XXIX, Subtitle B, Section 2901 et. seq., approved February 10, 1996 (the "Federal Act") C/O Commander and District Engineer, United States Army Corps of Engineers, Louisville District, ATTN: CELRL-RE-M, P.O. Box 59, Louisville, Kentucky 40201-0059, and THE JOLIET ARSENAL DEVELOPMENT AUTHORITY, Designee of the State of Illinois, and acting as the Agent of the State of Illinois for the purpose of accepting title to this real estate, C/O Mr. Richard A. Kwasneski, Executive Director, Joliet Arsenal Development Authority, 500 South Water Street, Wilmington, Illinois 60481 (the "GRANTEE").

WITNESSETH: That for the monetary consideration as set forth in Article I of this Deed, Grantor does hereby convey and quit claim to Grantee all interest in two (2) tracts of real estate located in Will County, Illinois, being more particularly described in Exhibit A, which is attached hereto and incorporated herein. These two tracts are defined as "Tract M8P" (Tract No. 1), consisting of 13.171 acres and "Tract LT3" (Tract No.2), consisting of 89.360 acres. Both tracts shall be collectively referred to herein as the "Property". Maps of the subject property are attached hereto as Exhibit B.

Consistent with this Deed, Grantor and Grantee have entered into a Memorandum of Agreement (hereinafter "MOA"), which was attached as Exhibit "A" to the Quit Claim Deed of Conveyance dated August 2, 2000 and which was recorded as Document No. R2000086264 on August 11, 2000 in the Will County Recorder's Office. The MOA is incorporated herein by reference. The MOA sets forth additional rights and responsibilities of the parties to the MOA with respect to the Property and other real

CHICAGO TITLE INSURANCE CO.

1108 28c

estate, and further addresses the parallel activities of remediating a portion of the site in a manner consistent with law while allowing the Property to be redeveloped.

**I. DEFERRED PAYMENT AND INTERIM LEASING BY GRANTEE  
TRACT NO. 1., AND TRACT NO. 2.:**

Subject to the terms and conditions as set forth in Sections A, B, C and D of this Article I, and in accordance with the Federal Act, the monetary consideration to be paid by Grantee on behalf of the State of Illinois for the conveyance of the Property to Grantee (the "Conveyance Consideration") shall be, (i) with respect to Tract No. 1, (Tract M8P), in accordance with the MOA, zero (the "Tract No. 1 Conveyance Consideration"), which reflects the fair market value Tract No. 1 as of the date of conveyance (\$13,171), less the fair market value of the work conducted on Tract No. 1 in order to render it in marketable condition for industrial use (the value of which work equals or exceeds \$13,171), and (ii) with respect to Tract No. 2, (Tract LT3), ONE HUNDRED SIXTY-TWO THOUSAND SEVEN HUNDRED TWENTY FOUR DOLLARS AND FIFTY SIX (\$162,724.56), (the "Tract No. 2 Conveyance Consideration") which reflects the fair market value of Tract No. 2 as of the date of delivery, acceptance, and recording of this Deed (the "Conveyance Date").

The subject consideration shall be paid as follows:

A. PAYMENT OF TRACT NO. 1 CONVEYANCE CONSIDERATION: No further payment is due to Grantor as it concerns this portion of the Property.

B. PAYMENT OF TRACT NO. 2 CONVEYANCE CONSIDERATION DEFERRED FOR A TWENTY (20) YEAR PERIOD: Subject to the terms and conditions as set forth in Sections C and D of this Article I, the Tract No. 2 Conveyance Consideration shall be paid to Grantor twenty (20) years after the Conveyance Date.

C. PAYMENT OF CURRENT FAIR MARKET VALUE, EXCLUDING THE VALUE OF ANY IMPROVEMENTS, FOR THE RECONVEYANCE OF ALL OR A PART OF TRACT NO. 2 DURING THE TWENTY (20) YEAR PERIOD OF DEFERRED PAYMENT: In the event Grantee acting on behalf of the State of Illinois conveys all or a part of Tract No. 2, other than to the State of Illinois (including its agencies, branches and political subdivisions)(a "Reconveyance") during the twenty (20) year period of deferred payment (reference Section B of Article I), Grantee shall pay to Grantor an amount equal to the fair market value excluding improvements of that portion of Tract No. 2 reconveyed (fair market value determined as of the date of such Reconveyance in the manner provided below in this Section C. of Article I, the "Reconveyance Consideration"). However, if such a Reconveyance occurs within thirty (30) days of the Conveyance Date the Reconveyance Consideration applicable to the portion of Tract No. 2 reconveyed shall be based on the Tract No. 2 Conveyance Consideration, prorated on a per acre basis. As an alternative to making an immediate payment to Grantor, if Reconveyance occurs within two years of the Conveyance Date, Grantee may defer payment of the Reconveyance Consideration applicable to the portion

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of Tract No. 2 reconveyed for up to two years after the date of such Reconveyance. If Grantee so elects to defer payment, then (i) in addition to payment of the applicable Reconveyance Consideration, Grantee shall pay to Grantor interest on a monthly basis (based upon the prevailing interest rate for the ten (10) year U.S. Treasuries maturities as published in the Wall Street Journal plus 1-1/2 percentage points rounded to the nearest 1/8<sup>th</sup> percent) on the principal amount of the Reconveyance Consideration so deferred, with any interest that is not paid when due being added to outstanding principal, and (ii) the Reconveyance Consideration, together with all accrued but unpaid interest thereon, shall be paid on or before the date that is two years after the date of applicable Reconveyance.

The Reconveyance Consideration for the portion of Tract No. 2 subject to a Reconveyance will be based upon the fair market value of such portion of the Property and will be determined by the Secretary of the Army in accordance with federal appraisal standards. In making his decision, the Secretary will consider an appraisal conducted by a certified land appraiser agreed to by Grantor and Grantee. Grantee shall pay the cost of the appraisal. The fair market value of such portion of the Property shall exclude the value of any improvements made thereto since the Conveyance Date by or on behalf of Grantee.

The monetary consideration to be paid for those portions of Tract No. 2, not reconveyed as described above shall be the Tract No. 2 Conveyance Consideration allocated on a per acre basis.

D. POTENTIAL PAYMENT OF CURRENT FAIR MARKET VALUE, EXCLUDING THE VALUE OF ANY IMPROVEMENTS, UPON LEASING OF ALL OR A PART OF TRACT NO. 2 DURING THE TWENTY (20) YEAR PERIOD OF DEFERRED PAYMENT: In the event Grantee leases all or a part of Tract No. 2 during the twenty (20) year period of deferred payment (reference Section B.), other than to the State of Illinois (including its agencies, branches and political subdivisions), Grantor shall have the right to treat the lease as a Reconveyance if the Secretary of the Army determines that the referenced transaction is being used to avoid the application of the payment provisions as set forth in Section C. of this Article. Should the Secretary of the Army determine that the referenced transaction is being used to avoid the application of payment provisions as set forth in Section C. of this Article, Grantee shall pay to Grantor an amount equal to the fair market value of the demised premises as of the date of the execution and delivery of the lease. The Secretary of the Army shall determine fair market value in accordance with federal appraisal standards. In making his decision, the Secretary will consider an appraisal conducted by a certified land appraiser agreed to by Grantor and Grantee. Grantee shall pay the cost of the appraisal. The fair market value of the demised Property shall exclude the value of any improvements made thereto since the Conveyance Date by or on behalf of Grantee.

The monetary consideration to be paid for those portions of Tract No. 2, not demised by Grantee shall be the Tract No. 2 Conveyance Consideration allocated on a per acre basis.

**II. ADDITIONAL CONVEYANCES  
(EASEMENTS/APPURTENANCES/IMPROVEMENTS, IF ANY):**

None.

**III. RESERVED EASEMENTS AND RIGHTS-OF-WAY:**

See Article VI, Section I below for CERCLA mandated access.

**IV. "AS IS" AND "WHERE IS" CONDITION:**

Except as otherwise provided in this Deed and except for: (1) the environmental condition of the Property; (2) obligations imposed under the Federal Act; and (3) obligations imposed under the Comprehensive Environmental Response, Compensation, and Liability Act (42 USC Section 9601 et seq., as amended, hereinafter "CERCLA") the Property, including all improvements located thereon, is conveyed "AS IS" and "WHERE IS" without representation, warranty, or guaranty by Grantor as to the quantity, quality, character, title, condition, size or kind, or that the same is in condition or fit to be used for the purpose for which intended, and no claim for allowance or deduction upon such grounds will be considered. There is no obligation on the part of Grantor to make any alterations, repairs or additions. Grantor shall not be liable for any latent or patent defects to or on the Property, including all improvements located thereon, and Grantee acknowledges that Grantor has made no representation or warranty concerning the condition or state of repair of the Property, or any improvements located thereon, nor any agreement or promise to alter, improve, adapt, or repair any portion of the Property.

**V. NOTICE OF THE POTENTIAL FOR THE PRESENCE OF UNEXPLODED ORDNANCE OR EXPLOSIVES (OE):**

Ordnance and Explosive ("OE") investigations indicate that OE is not likely on this Property. However, because this is a former military installation with a history of OE there is potential for OE to be present on the Property. In the event that Grantee, its successors and assigns, and future owners, heirs and executors, should discover what appears to be items of an ordnance or explosive nature on the Property, the said parties shall not attempt to remove or destroy such items, will immediately stop any excavation or other work in the area, and notify the local Police Department and the nearest Department of the Army Explosive Ordnance Detachment. The Army acknowledges its responsibility for OE and Unexploded Ordnance ("UXO") and will take prompt action to respond upon notification of discovery. The Grantee, its successors and assigns, future owners, heirs, and executors will provide access to the Grantor, at no expense to the Government, for the purpose of removal of OE in the event the Grantee, its successors and assigns, future owners, heirs, and executors

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should discover any OE on the Property. For purposes of this Deed, OE, Ordnance and Explosives shall have the same meaning as that provided in the US Army Engineer Regulation (ER) 1110-1-8153, Ordnance & Explosive Response, 14 May 1999 or successor authority. ER 1110-1-8153 currently defines OE as Ordnance and Explosive which is anything related to munitions designed to cause damage to personnel or material through explosive force, incendiary action or toxic effects. Soils with explosive constituents are considered explosive if the concentration is sufficient to be reactive and present an imminent safety hazard as determined by the US Army Corps of Engineers, Ordnance and Explosive, Mandatory Center of Expertise. UXO shall have the same meaning as that provided in the 40 Code of Federal Regulations (CFR) 266.201, which defines UXO as, military munitions that have been primed, fused, armed, or otherwise prepared for action, and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material and remain unexploded either by malfunction, design, or any other cause.

#### VI. CERCLA COVENANTS AND NOTICE:

Pursuant to Section 120(h)(3) of CERCLA, for Tract M8P (attached as Exhibit A, Tract No. 1):

- A. Grantor hereby notifies Grantee that: (1) hazardous substances were stored, released, and disposed on Tract M8P so as to exceed the time period or quantity limits established by 40 CFR Part 373 for notification (for the purposes of this Deed, "hazardous substances" shall have the same meaning as Section 101(14) of CERCLA); (2) available information regarding the type, quantity, and location of such substances and actions taken is attached hereto at Exhibit C and incorporated herein (also included in Exhibit C is a table identifying the chemicals used, stored, released and/or disposed on Joliet Army Ammunition Plant); (3) except as indicated by this table, there is no evidence indicating that hazardous substances were released on site, and the information regarding this storage and release indicates that there is no known existing threat to human health and the environment.
- B. Grantor hereby covenants that all remedial action necessary to protect human health and the environment with respect to any such hazardous substances remaining on Tract M8P has been taken before the date of conveyance hereunder and are consistent with planned future use as a commercial and industrial park; and as between Grantor and Grantee, the Grantee's successors and assigns, future owners, heirs, and executors, any additional remedial action found to be necessary with regard to such hazardous substances remaining after the date of the conveyance shall be Grantor's responsibility; provided that Grantor shall be entitled to exercise its rights with respect to any potentially responsible party. Notwithstanding the foregoing, pursuant to CERCLA Section 120(h)(3)(B), the covenant issued to Grantee under this

Subsection VI B of this Deed shall not run to any person or entity determined to be a potentially responsible party with regard to Tract M8P, conveyed under this Deed.

- C. Regarding Tract M8P, the South Acid Pond was drained under Illinois Environmental Protection Agency (hereinafter "IEPA") permit issued to CenterPoint Properties and subsequently razed.
- D. The remedial action for contaminated groundwater consists of establishing Groundwater Management Zones, deed restrictions, periodic site inspections, groundwater and surface water monitoring, and natural attenuation.
- E. Consistent with the terms of the Joliet Army Ammunition Plant MOA, dated August 2000, Grantor reserves a perpetual right of access to Tract M8P, which Grantor may exercise in any case in which investigation, sampling, remedial action, corrective action, installing or removing groundwater monitoring wells, testing or monitoring of groundwater conditions is found to be necessary after the date of this Deed in order to fulfill Grantor's environmental responsibilities under this Deed; CERCLA; the June 1989 Federal Facility Agreement (hereinafter "FFA"); the October 1998 Record of Decision and any amendments thereto or any subsequent Records of Decision applicable to Tract M8P (hereinafter "ROD"); and any other applicable laws and regulations.
- F. For purposes of this Deed, Grantor and Grantee agree that the mere tenancy or occupation by Grantee, its successors and assigns, and all future owners, tenants, subtenants, heirs, and executors, of the portion of Tract M8P so leased or occupied by Grantee, or the ownership of Tract M8P by Grantee, its successors and assigns, future owners, heirs, and executors, will not cause any of said parties to be a potentially responsible party under this Deed solely because or as a result of such tenancy, occupancy or ownership.

Pursuant to Section 120(h)(4) of CERCLA, for Tract LT3 (attached as Exhibit A, Tract No. 2):

- G. The Grantor hereby notifies Grantee that the Grantor's Finding of Suitability to Transfer ("FOST") dated February 2003 identified an uncontaminated parcel on the Property, specifically; that parcel identified in the FOST as LT3, referred to herein as Tract LT3.
- H. The Grantor hereby covenants that any remedial action found to be necessary after the date of this conveyance shall be Grantor's responsibility; provided that Grantor shall be entitled to exercise its rights with respect to any potentially responsible party. For purposes of this Deed, Grantor and Grantee agree that the mere tenancy or occupation by Grantee, its successors and

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assigns, and all future owners, tenants, subtenants, heirs, and executors, of the portion of Tract LT3 so leased or occupied by the Grantee or the ownership of Tract LT3 by Grantee, its successors and assigns, future owners, heirs, and executors, will not cause any of said parties to be a potentially responsible party under this Deed solely because or as a result of such tenancy, occupancy or ownership.

- I. Consistent with the terms of the MOA, Grantor hereby reserves a perpetual easement and right of access to Tract LT3, which Grantor may exercise in any case in which any response action, investigation, sampling, remedial action, corrective action, installing or removing groundwater monitoring wells, testing or monitoring of groundwater conditions is found to be necessary after the date of this Deed in order to fulfill Grantor's environmental responsibilities under this Deed; CERCLA; the FFA; the ROD, and any other applicable laws and regulations.

#### **VII. GRANTEE'S ACKNOWLEDGEMENT OF THE ENVIRONMENTAL CONDITION OF THE PROPERTY**

Grantee has reviewed the technical environmental reports including, but not limited to, the FOST for the Property, prepared by Grantor. Grantee has no knowledge to conclude that the technical environmental reports do not accurately describe the environmental condition of the Property. Grantee has inspected the Property and has no knowledge to conclude that the Property is not suitable for Grantee's intended use. Grantor shall not be responsible for the remediation of any hazardous substances or petroleum that are introduced onto the Property after the date hereof, except to the extent that Grantor introduces such hazardous substances or petroleum onto the Property. This Article shall not affect Grantor's responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules, and regulations.

#### **VIII. LAND USE RESTRICTIONS AND COVENANTS AND MONITORING WELL RESTRICTIONS AND COVENANTS FOR THE PROPERTY:**

The Property shall be subject to the land use restrictions and covenants as set forth in this Article.

- A. It is the intent of Grantor and Grantee that the land use restrictions and covenants and monitoring well use restrictions and covenants as set forth in this Article shall run with the land and restrict the use of the Property pursuant to the legislative mandate set forth in the Federal Act and are necessary to ensure the protection of human health and the environment.



- B. That within the boundaries of the Property, Grantee, its successors and assigns, future owners, heirs, and executors, shall not use, move, access, modify, remove, disturb, close, abandon, or otherwise harm or destroy any existing, or future existing, groundwater monitoring well that is owned by Grantor, without prior written permission from the Grantor in consultation with the United States Environmental Protection Agency (hereinafter "USEPA") and IEPA. If written permission is granted to any landowner(s) for the installation of a replacement well, it shall be installed, at no expense to the Grantor, pursuant to applicable federal laws and regulations and the standards current at the time set forth in the Illinois Water Well Construction Code or successor codes.
- C. Grantee covenants for itself, its successors, and assigns, future owners, heirs, and executors, that the land use restrictions and covenants as set forth in this Article shall be covenants running with the land and shall be binding upon the Grantee, its successors and assigns, future owners, heirs, and executors.
- D. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the land use restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of the Property. Notwithstanding this provision, failure to include the land use restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.
- E. Grantee, its successors and assigns, future owners, heirs, and executors, shall not knowingly or negligently undertake or allow any activity on or use of the Property that would violate the land use restrictions and covenants as set forth in this Article.
- F. The land use restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall have the right to enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of the Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.
- G. It is the intent of the Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Grantee, its successors and assigns, future owners (excluding the United States), heirs, and executors shall use the Property for commercial and industrial parks. In addition, the Property shall not be used by Grantee, its successors and assigns, future owners (including the United States), heirs, and executors, for:

1. any type of residential purpose;
2. any type of educational purpose for children in grades kindergarten through twelve (12);
3. any type of child or adult care purpose, provided however, this prohibition shall not exclude any child day care facility operated solely within the confines of a building structure;
4. any type of solid or hazardous waste landfill purpose;
5. any type of commercial quarry operation, provided that the foregoing restriction shall not prohibit: (a) mass earth work and site grading activities, including borrow, fill, and balancing; or (b) the excavation and use of gravel, sand, stone, aggregate and other on-site materials as rail bed ballast, in making concrete or asphalt, or in the construction of detention and retention facilities, rail beds, roads, or rights-of-way; or (c) other construction activities on or about the Property or in constructing roads and railroads leading or connecting to the Property to a distance of no more than ten (10) miles from the Property;
6. any type of incineration of solid waste other than in connection with on-site manufacturing process(es); and
7. any type of concrete batch plant or asphalt plant, unless the concrete or asphalt batch plant is operated for the purpose of servicing construction activities associated with the development of the Property or in constructing roads and railroads leading or connecting to the Property to a distance of no more than ten (10) miles from the Property.

**IX. GROUNDWATER RESTRICTIONS AND COVENANTS FOR TRACT M8P:**

Tract M8P (attached as Exhibit A, Tract No. 1) lies within the Groundwater Management Zone (map attached as Exhibit B) established by the Joliet Army Ammunition Plant Record of Decision (ROD), dated October 1998 for the approximate 23,500-acre former Joliet Army Ammunition Plant.

- A. Tract M8P is subject to the groundwater restrictions and covenants as set forth in this Article.
- B. It is the intent of Grantor and Grantee that the groundwater restrictions and covenants as set forth in this Article shall restrict the use of Tract M8P for the protection of human health and the environment until such time as Tract M8P has been remediated to the standards established in the ROD as contemplated in

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Section F below. The ROD and amendments or corrections thereto are available at the following repositories: Wilmington Library, Joliet Library, Administration Building at Joliet Army Ammunitions Plant, Region 5 USEPA, and IEPA Bureau of Land, Federal Facilities Unit, Springfield, Illinois.

- C. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the groundwater restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of Tract M8P. Notwithstanding this provision, failure to include the groundwater restrictions and covenants, as set forth in this Article, in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.
- D. Grantee, its successors and assigns, future owners, heirs, and executors shall not undertake or allow any activity on or use of Tract M8P that would violate the groundwater restrictions and covenants as set forth in this Article.
- E. The groundwater restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall have the right to enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.
- F. Grantee covenants for itself, its successors, and assigns, future owners, heirs, and executors that the groundwater restrictions and covenants as set forth in this Article shall be covenants running with the land and shall be binding upon Grantee, its successors and assigns, future owners, heirs, and executors. Upon the successful remediation of Tract M8P to the industrial standards set forth in the ROD, Grantor, with the written concurrence of the USEPA and the IEPA, shall release, in whole or in part, any relevant groundwater restriction and covenant set forth in this Article. The referenced release shall not be unreasonably withheld. In addition, the referenced release shall be executed by the Secretary of the Army, United States Department of the Army, or his/her authorized designee.
- G. It is the intent of Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Unless the following restrictions in this Section G are removed or amended in accordance with this Article, within the boundary of Tract M8P, Grantee, its successors and assigns, future owners, heirs, and executors:

1. Shall not conduct any activity (e.g., any anthropogenic seismic activity, deep excavation activity, or drilling or pumping a well within the Silurian dolomite aquifer) that would increase the volume or area of the contaminated groundwater, damage the confining layers that underlie the contaminated groundwater (e.g., fracturing the Maquoketa confining layer or any other existing confining layer(s) or strata of the Maquoketa confining layer), or create pathways of exposure to human or ecological receptors from the contaminated groundwater to the extent prohibited by the ROD. For identification purposes, the groundwater within the glacial drift and the Silurian dolomite aquifer (collectively referred to herein as "the contaminated groundwater") is located above the Maquoketa confining bed.
  2. Shall not use the groundwater above the Maquoketa confining bed for potable purposes.
- H. Shallow groundwater above the Maquoketa confining bed has the potential to be contaminated with hazardous substances, including, but not limited to explosives, their derivatives or volatile organic compounds. In the event shallow groundwater above the Maquoketa confining bed is encountered at any time due to the disturbance or excavation of surface or subsurface soil, Grantee, its successors and assigns, future owners, heirs, and executors, shall comply with all laws and regulations that are applicable to the safe and proper management, discharge, disposal, or treatment of all shallow groundwater encountered.

#### **X. GROUNDWATER RESTRICTIONS AND COVENANTS FOR DEED RESTRICTED PROPERTY**

- A. Tract M8P as legally described and identified as Tract No. 1 in the attached Exhibit A hereto, is subject to the groundwater restrictions and covenants as set forth in this Article shall be referred to in this Article as the Deed Restricted Parcel. (See attached Exhibit B).
- B. It is the intent of Grantor and Grantee that the groundwater restrictions and covenants as set forth in this Article shall restrict the use of the Deed Restricted Parcel for the protection of human health and the environment until such time as the Deed Restricted Parcel has been remediated to the standards established in the ROD, as provided in Section F below.
- C. Grantee, its successors and assigns, future owners, heirs, and executors, shall include the groundwater restrictions and covenants as set forth in this Article in all subsequent lease, transfer, or conveyance documents for all or any part of the Deed Restricted Parcel. Notwithstanding this provision, failure to include the groundwater restriction and covenant as set forth in this Article in all subsequent lease, transfer, or conveyance documents shall not abrogate the status of these

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restrictions and covenants as binding upon Grantee, its successors and assigns, future owners, heirs, and executors.

- D. Grantee, its successors and assigns, future owners, heirs, and executors, shall not undertake or allow any activity on or use of the Deed Restricted Parcel that would violate the groundwater restrictions and covenants as set forth in this Article.
- E. The groundwater restrictions and covenants as set forth in this Article are enforceable by Grantor. Grantor shall enforce the terms of this Deed by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all remedies at law or in equity, including CERCLA. Enforcement of the terms of this Deed shall be at the discretion of Grantor, and any forbearance, delay, or omission to exercise its rights under this Deed in the breach of any term of this Deed shall not be deemed to be a waiver by Grantor of such term or any subsequent breach of the same or any other term, or of any of the rights of Grantor under this Deed.
- F. Grantee covenants for itself, its successors and assigns, future owners, heirs, and executors that the groundwater restrictions and covenants, as set forth in this Article shall be covenants running with the land and shall be binding upon Grantee, its successors and assigns, future owners, heirs, and executors. Upon the successful remediation of the Deed Restricted Parcel to the industrial standards set forth in the ROD, Grantor, with the written concurrence of the USEPA and the IEPA, shall release, in whole or in part, any relevant groundwater restriction and covenant set forth in this Article. The referenced release shall not be unreasonably withheld. In addition, the referenced release shall be executed by the Secretary of the Army, United States Department of the Army; or his/her authorized designee.
- G. It is the intent of Grantor and Grantee that the restrictions set forth in this Section shall ensure the protection of human health and the environment. Unless the following restrictions in this Section G are removed or amended in accordance with Section F of this Article, within the boundary of the Deed Restricted Parcel, Grantee, its successors and assigns, future owners, heirs, and executors:
  - 1. Shall not use the contaminated groundwater; and
  - 2. Shall not drill, construct, pump, or use groundwater supply wells.

## **XI. CERCLA REMEDIATION**

- A. Grantor acknowledges that the Joliet Army Ammunition Plant, Will County, Illinois has been identified as a National Priorities List site under CERCLA. Grantee acknowledges that Grantor has provided it with a copy of the FFA.

- B. Grantee, its successors and assigns, future owners, heirs, and executors agree that should any conflict arise between the terms of the ROD, in accordance with CERCLA, as they exist at the time a conflict arises, and the provisions of this Deed, the provisions of the ROD will prevail. Grantee, its successors and assigns, future owners, heirs, and executors, further agrees that notwithstanding any other provisions of this Deed, Grantor assumes no liability to Grantee, its successors and assigns, future owners, heirs, and executors should implementation of the FFA interfere with their use of the Property; and said parties shall have no claim on account of any such interference against the United States of America or any officer, agent, employee or contractor thereof, except to the extent that such claim arises out of negligent behavior on the part of the United States of America or any officer, agent, employee or contractor thereof.
- C. All construction and development activities conducted on the Property by Grantee, its successors and assigns, future owners, heirs and executors, shall be conducted in a manner, which is consistent with the ROD. In particular, Grantee, its successors and assignees, future owners, heirs and executors, will not tamper with, damage, or destroy groundwater monitoring wells or otherwise interfere with ongoing remediation operations. Grantor and Grantee or its successors and assigns may acknowledge in the MOA (with the written concurrence of the USEPA and IEPA), or subsequent amendments thereto, that certain activities described therein are not inconsistent with the ROD. Notwithstanding any other provision of this Article, nothing in this Article reduces or in any way circumvents the protections provided and obligations imposed by CERCLA.
- D. All subsequent conveyances of the Property or any interests therein, by Grantee, its successors and assigns, future owners, heirs, and executors, shall be expressly subject to the rights and duties of Grantor to continue operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA, the FFA, or the ROD. Grantee, its successors and assigns, future owners, heirs, and executors, shall provide:
1. Initial Transfer Notice-reasonable notice (not less than 24 hours), to Grantor, USEPA and IEPA of any subsequent conveyance of the Property, or portions thereof (including a description of the deed/lease provisions allowing for Grantor's continued remediation activities), to CenterPoint Industrial LLC (an Illinois limited liability company), CenterPoint Intermodal LLC (an Illinois limited liability company), CenterPoint Realty Services Corporation (an Illinois corporation), CenterPoint Properties Trust (a Maryland real estate investment trust), the State of Illinois, or the United States ;
  2. Pre-transfer Notice-30 days written notice of any other transfer to parties not described immediately above (including a description of the

deed/lease provisions allowing for Grantor's continued remediation activities) to Grantor, USEPA, and IEPA;

3. Deed/lease-Within 14 days after the effective date of the transaction, Grantee, its successors and assigns, future owners, heirs, and executors, shall provide to Grantor, USEPA, and IEPA copies of the deed, lease, or other conveying instrument evidencing such transaction.

- E. Notwithstanding any other provision herein, nothing in this document reduces or in any way circumvents the protections provided and obligations imposed by CERCLA Section 120(h).

## **XII. NON-DISCRIMINATION PROVISION:**

Grantee shall not discriminate upon the basis of race, color, religion, sex, age, disability, or national origin in the use, occupancy, sale, or lease of the Property or any part thereof, or in its employment practices conducted thereon in violation of the provisions of Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. Section 2000d); the Age Discrimination Act of 1975 (42 U.S.C. Section 6102); and the Rehabilitation Act of 1973, as amended (29 U.S.C. Section 794). Grantor shall be deemed a beneficiary of this assurance without regard to whether it remains the owner of any real estate or interest therein in the locality of the Property and shall have the sole right to enforce this covenant in any court of competent jurisdiction. This assurance shall not apply, however, to the lease or rental of a room or rooms within a family dwelling unit; nor shall it apply with respect to religion or to premises used primarily for religious purposes. A violation or breach of this non-discrimination provision by Grantee, its successors and assigns, future owners, heirs, and executors, shall not result in a forfeiture or reversion of title.

## **XIII. ANTI-DEFICIENCY ACT STATEMENT:**

The Army's obligation to pay or reimburse any money under this Deed is subject to the availability of appropriated funds to the Department of the Army, and nothing in this Deed shall be interpreted to require obligations or payments by the United States in violation of the Anti-Deficiency Act.

## **XIV. NON-REVERTER:**

The title hereby conveyed is not qualified, defeasible, or subject to any special limitation, condition subsequent or executory limitation. The failure of Grantee or any successor owner or occupant of the Property (or any portion thereof) to comply with the covenants, restrictions, requirements, or other obligations set forth in this Deed



shall not under any circumstances cause a forfeiture of title to the Property, a termination of any estate hereby created, or any reversion thereof, it being agreed by Grantor that neither Grantor or any other party holds or possesses any reversion, possibility of reverter, common law right of entry for condition broken, or right or power of forfeiture or termination with respect to the Property, all such possibilities, rights, or powers being hereby expressly waived by Grantor.

POSSESSION is to be given upon the delivery and acceptance of this Deed.

IN WITNESS WHEREOF, the GRANTOR has caused this Deed to be executed in its name by the Deputy Assistant Secretary of the Army (I&H), and the Seal of the Department of the Army to be hereunto affixed, this 27<sup>th</sup> day of August, 2003.



UNITED STATES OF AMERICA

BY:

Joseph W. Whitaker

Joseph W. Whitaker  
Deputy Assistant Secretary of the Army  
(Installations & Housing)  
OASA (I & E)

Signed sealed and delivered  
In the presence of:

Witness

Anthony R. [Signature]

Witness

P. G. T. [Signature]

Except under provisions of Paragraph 6, Section 4,  
Real Estate Transfer Tax Act.

2/11/04

Date

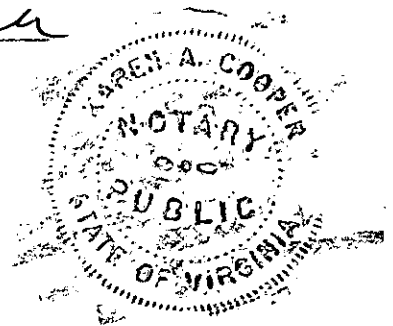
[Signature]  
Buyer, Seller or Representative

COMMONWEALTH OF VIRGINIA )  
 ) SS  
COUNTY OF ARLINGTON )

I, the undersigned, a Notary Public in and for the Commonwealth of Virginia, County of Arlington, whose commission as such expires on the 30<sup>th</sup> day of November, 2008, do hereby certify that his day personally appeared before me in the Commonwealth of Virginia, County of Arlington, Joseph W. Whitaker, Deputy Assistant Secretary of the Army (I & H), whose name is signed to the foregoing instrument and acknowledged the foregoing instrument to be his free act and deed, dated this 27<sup>th</sup> day of August, 2003, and acknowledged the same for and on behalf of the UNITED STATES OF AMERICA.

Karen A. Cooper  
Notary Public

My commission expires: 30 November 2006




## APPROVAL AND ACCEPTANCE

On this 23rd day of June, 2003, Joliet Arsenal Development Authority, Designee of the State of Illinois, and acting as the Agent of the State of Illinois for the purpose of accepting title to this real estate, does hereby accept and approve this Quit Claim Deed of Conveyance and does hereby agree to all of the terms and conditions set forth therein.

IN TESTIMONY WHEREOF, witness the signature of the Grantee, acting by and through Richard A. Kwasneski, Executive Director, this 23rd day of June, 2003.

JOLIET ARSENAL DEVELOPMENT AUTHORITY

  
Richard A. Kwasneski  
Executive Director

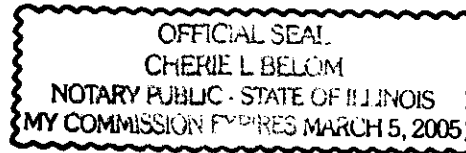
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STATE OF ILLINOIS       )  
   ) SS  
 COUNTY OF WILL       )

The foregoing Quit Claim Deed of conveyance was acknowledged before me this  
23rd day of June, 2003, by Richard A. Kwasneski, as Executive Director of  
 Joliet Arsenal Development Authority.

Cherie L. Belom  
 Notary Public, State of Illinois

My commission expires: March 05, 2005



Prepared By:

Joseph W. Whitaker  
 Deputy Asst. Secy. of the Army  
 Attn: CERL-RE-M  
 P.O. Box 59  
 Louisville, KY 40201-0059

After Recording Return to:  
 Kevin Breslin  
 Weinberg Richmond LLP  
 333 W. Wacker Drive  
 Suite 1800  
 Chicago, IL 60606

WR# 09803.00200

*Takes to: The Joliet Arsenal  
 Development Authority  
 500 S. Water Street  
 Wilmington, IL 60481*

MANUFACTURING AREA  
TRACT 1 - TRACT M8P (South Acid Pond)

FORMER JOLIET ARMY  
AMMUNITION PLANT  
WILL COUNTY, ILLINOIS

Legal Description

**TRACT 1 - TRACT M8P (South Acid Pond)**

THAT PART OF SECTION 26, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: COMMENCING AT THE INTERSECTION OF THE SOUTH LINE OF SECTION 35 IN SAID TOWNSHIP AND RANGE, WITH A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TNT ROAD; THENCE NORTH 06 DEGREES 05 MINUTES 12 SECONDS EAST ALONG SAID PARALLEL LINE 254.34 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 18 DEGREES 04 MINUTES 43 SECONDS WEST 1830.93 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 02 DEGREES 00 MINUTE 44 SECONDS WEST 50.00 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1010.00 FEET; THENCE NORTH 24 DEGREES 02 MINUTES 35 SECONDS WEST 593.70 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1020.00 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 997.97 FEET; THENCE NORTH 87 DEGREES 56 MINUTES 38 SECONDS EAST 799.20 FEET; THENCE NORTH 43 DEGREES 09 MINUTES 10 SECONDS EAST 170.31 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 34 SECONDS WEST 900.01 FEET; THENCE SOUTH 87 DEGREES 56 MINUTES 38 SECONDS WEST 810.01 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 770.00 FEET; THENCE NORTH 30 DEGREES 31 MINUTES 22 SECONDS EAST 450.96 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 160.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 88 DEGREES 25 MINUTES 08 SECONDS EAST 617.05 FEET; THENCE NORTH 33 DEGREES 23 MINUTES 57 SECONDS EAST 261.50 FEET; THENCE NORTH 2 DEGREES 14 MINUTES 08 SECONDS WEST 716.02 FEET; THENCE SOUTH 88 DEGREES 26 MINUTES 35 SECONDS WEST 411.56 FEET; THENCE SOUTH 01 DEGREE 45 MINUTES 06 SECONDS EAST 177.50 FEET; THENCE SOUTH 43 DEGREES 55 MINUTES 16 SECONDS WEST 489.26 FEET; THENCE SOUTH 01 DEGREE 45 MINUTES 06 SECONDS EAST 410.00 FEET TO THE POINT OF BEGINNING; CONTAINING 13.171 ACRES, MORE OR LESS.

Vacant land lying on South Industrial Rd., South of Drummond Rd., Elwood, IL

PIN: 10-26-400-001-0010 and 10-26-400-001-0020

LOAD-ASSEMBLE-PACKAGE AREA  
TRACT 2 - TRACT LAP AREA (LT3)

FORMER JOLIET ARMY  
AMMUNITION PLANT  
WILL COUNTY, ILLINOIS

Legal Description

**TRACT 2 - TRACT LAP AREA (LT3)**

THAT PART OF SECTION 18, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST ALONG THE SOUTH LINE OF SAID SECTION 18, A DISTANCE OF 3795.50 FEET; THENCE NORTH 1 DEGREE 46 MINUTES 57 SECONDS WEST 1025.02 FEET; THENCE NORTH 87 DEGREES 49 MINUTES 13 SECONDS EAST 3800.14 FEET TO THE EAST LINE OF AFORESAID SECTION 18; THENCE SOUTH 1 DEGREE 31 MINUTES 23 SECONDS EAST ALONG SAID EAST LINE 1025.07 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS; CONTAINING 89.36 ACRES, MORE OR LESS.

Northwest Corner of the Intersection of Quigley and Riley Roads, Elwood, IL

PIN: 18-18-100-001-0000

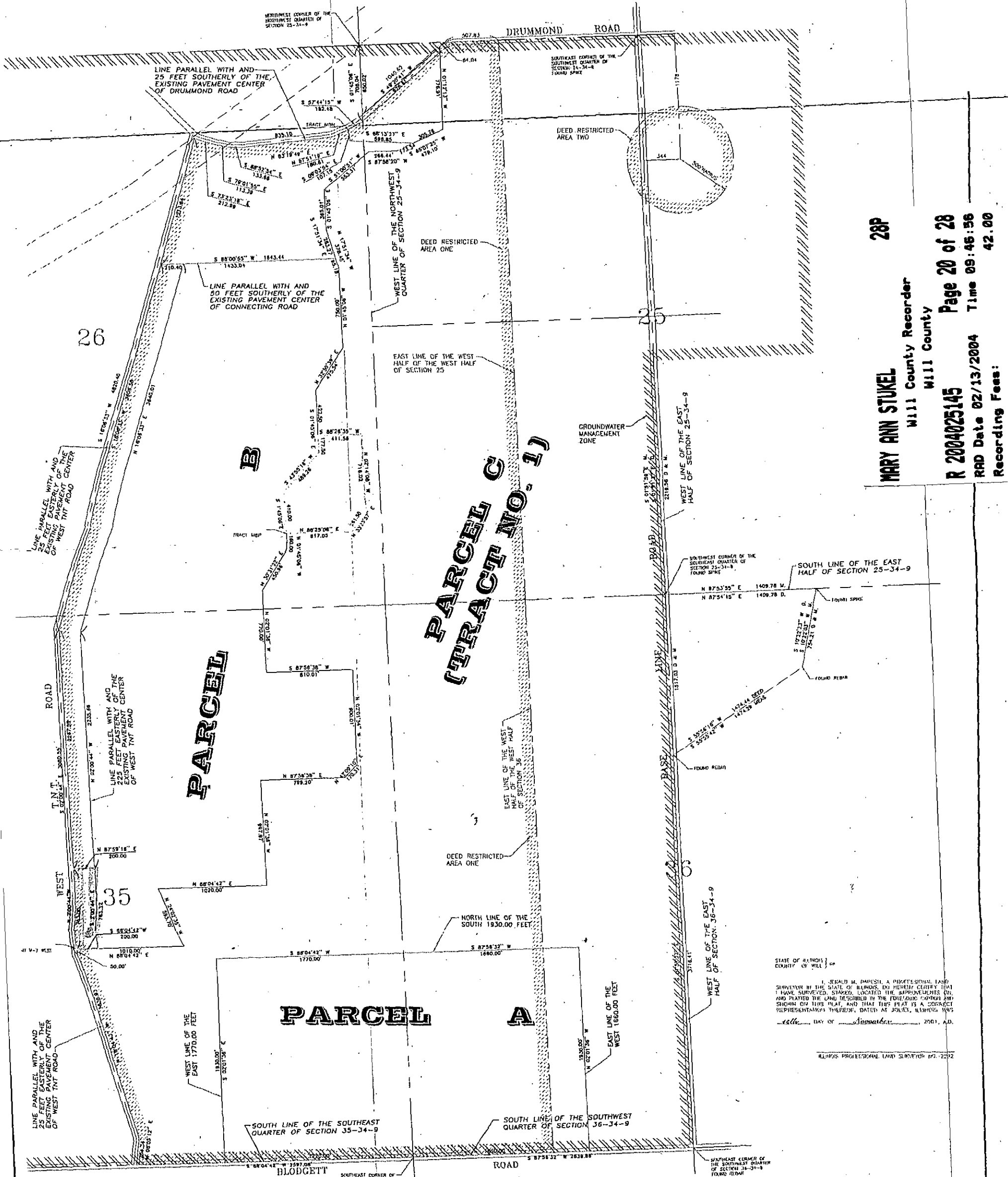
PARCEL B - TRACT MBP (SOUTH ACID POND L73)

THAT PART OF SECTION 25, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: COMMENCING AT THE INTERSECTION OF THE SOUTH LINE OF SECTION 35 IN SAID TOWNSHIP AND RANGE, WITH A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TINT ROAD; THENCE NORTH 08 DEGREES 05 MINUTES 12 SECONDS EAST ALONG SAID PARALLEL LINE 254.34 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 18 DEGREES 04 MINUTES 43 SECONDS WEST 1830.93 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 02 DEGREES 00 MINUTE 44 SECONDS WEST 50.00 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1010.00 FEET; THENCE NORTH 24 DEGREES 02 MINUTES 35 SECONDS WEST 593.70 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 42 SECONDS EAST 1020.00 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 997.97 FEET; THENCE NORTH 87 DEGREES 56 MINUTES 38 SECONDS EAST 789.20 FEET; THENCE NORTH 43 DEGREES 09 MINUTES 10 SECONDS EAST 170.31 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 34 SECONDS WEST 900.01 FEET; THENCE SOUTH 87 DEGREES 56 MINUTES 38 SECONDS WEST 810.01 FEET; THENCE NORTH 02 DEGREES 01 MINUTE 36 SECONDS WEST 770.00 FEET; THENCE NORTH 30 DEGREES 31 MINUTES 22 SECONDS EAST 450.98 FEET; THENCE NORTH 01 DEGREE 45 MINUTES 06 SECONDS WEST 160.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 88 DEGREES 25 MINUTES 08 SECONDS EAST 617.05 FEET; THENCE NORTH 33 DEGREES 23 MINUTES 57 SECONDS EAST 261.50 FEET; THENCE NORTH 2 DEGREES 14 MINUTES 08 SECONDS WEST 716.02 FEET; THENCE SOUTH 88 DEGREES 26 MINUTES 35 SECONDS WEST 411.56 FEET; THENCE SOUTH 01 DEGREE 45 MINUTES 08 SECONDS EAST 177.50 FEET; THENCE SOUTH 43 DEGREES 55 MINUTES 18 SECONDS WEST 489.26 FEET; THENCE SOUTH 01 DEGREE 45 MINUTES 06 SECONDS EAST 410.00 FEET TO THE POINT OF BEGINNING. Containing 13.171 acres more or less.

\*Parcel B in this map is referred to as Tract I in the deed

PARCEL B - EASEMENT, M-7 WEST

THAT PART OF SECTION 35, IN TOWNSHIP 34 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, CHANNAHON TOWNSHIP, WILL COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS: COMMENCING AT THE INTERSECTION OF THE SOUTH LINE OF SAID SECTION 35 WITH A LINE PARALLEL WITH AND 25 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TINT ROAD; THENCE NORTH 08 DEGREES 05 MINUTES 12 SECONDS EAST ALONG SAID PARALLEL LINE 254.34 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 18 DEGREES 04 MINUTES 43 SECONDS WEST 1830.93 FEET; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 02 DEGREES 00 MINUTES 44 SECONDS WEST 50.00 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID PARALLEL LINE NORTH 2 DEGREES 00 MINUTES 44 SECONDS WEST 763.00 FEET; THENCE NORTH 87 DEGREES 56 MINUTES 38 SECONDS EAST TO A LINE PARALLEL WITH AND 225 FEET EASTERLY OF THE EXISTING PAVEMENT CENTER OF WEST TINT ROAD; THENCE SOUTH 2 DEGREES 00 MINUTES 44 SECONDS EAST ALONG SAID PARALLEL LINE 763.32 FEET; THENCE SOUTH 88 DEGREES 04 MINUTES 42 SECONDS WEST 200.00 FEET TO THE POINT OF BEGINNING; containing 3.504 acres more or less.



28P

MARY ANN STUKEL  
Will County Recorder  
Will County

Page 20 of 28  
R 2004025145

Time 09:46:56  
RAD Date 02/13/2004  
Recording Fees: 42.00

PARCEL C  
(TRACT NO. 1)

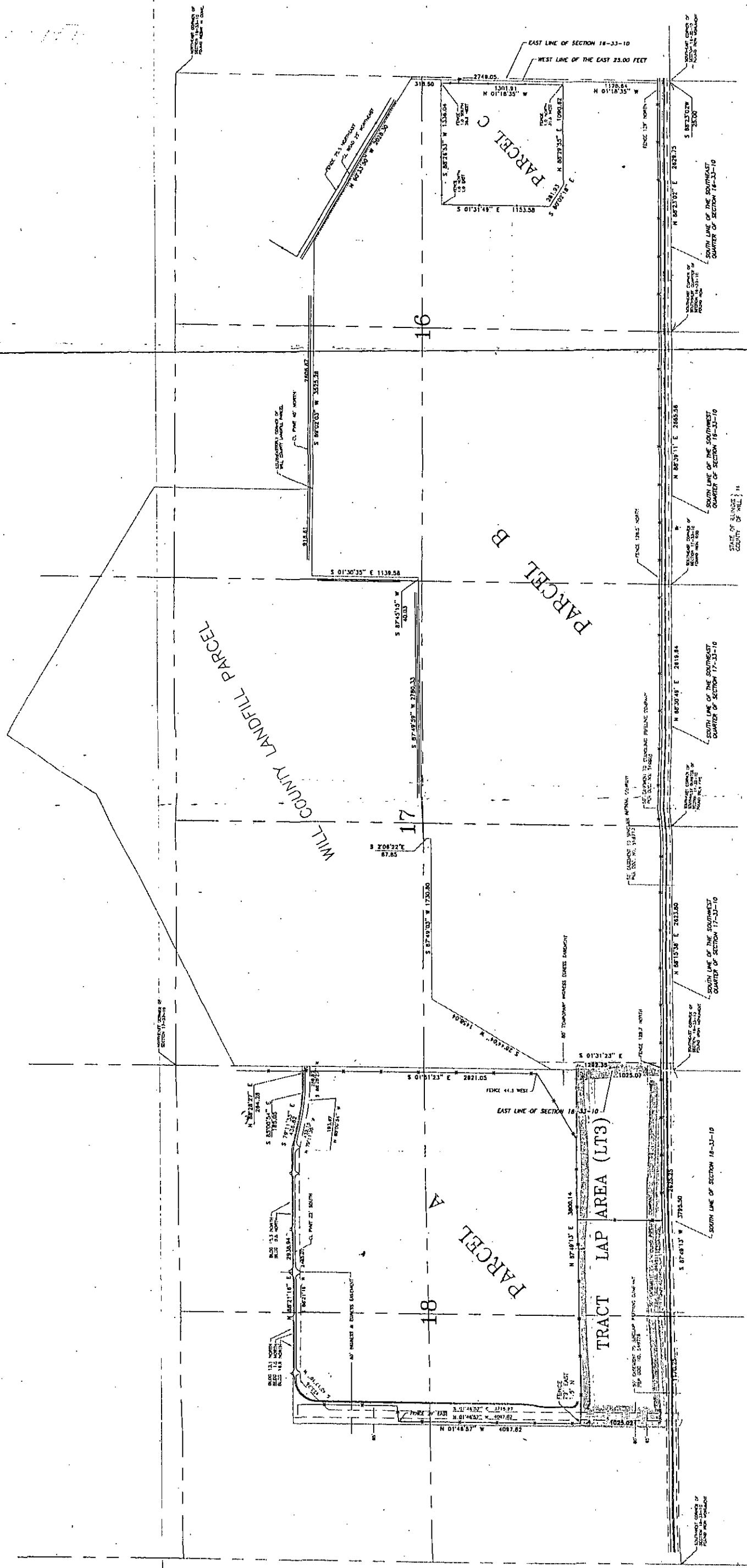
PARCEL A

PLAT OF SURVEY

\* PARCEL A TRACT LAP AREA (LT3)

THAT PART OF SECTION 18, IN TOWNSHIP 33 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 18; THENCE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST 3795.50 FEET TO THE SOUTHWEST CORNER OF SAID SECTION 18; A DISTANCE OF 3795.50 FEET; THENCE NORTH 1 DEGREE 45 MINUTES 45 SECONDS WEST 1025.07 FEET TO THE SOUTHWEST CORNER OF SAID SECTION 18; THENCE NORTH 87 DEGREES 49 MINUTES 13 SECONDS EAST 3800.14 FEET TO THE SOUTHWEST CORNER OF SAID SECTION 18; THENCE SOUTH 87 DEGREES 49 MINUTES 13 SECONDS WEST 1025.07 FEET TO THE POINT OF BEGINNING; IN WILL COUNTY, ILLINOIS, CONTAINING 89.36 ACRES, MORE OR LESS.

\*Parcel A in this map is referred to as Tract 2 in the Deed



STATE OF ILLINOIS  
COUNTY OF WILL

BEFORE ME, JERARD M. PATEL, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF ILLINOIS, DO HEREBY CERTIFY THAT I HAVE EXAMINED THE ORIGINAL SURVEY RECORDS ON FILED IN THE OFFICE OF THE CLERK OF THE COUNTY OF WILL, AND HAVE FOUND THAT THE PLAT IS A CORRECT REPRESENTATION THEREOF. DATED AT JOLIET, ILLINOIS, THIS 14th DAY OF NOVEMBER, 2001, A.D.

JERARD M. PATEL, PROFESSIONAL LAND SURVEYOR NO. 2202

Table 3 - Notification of Hazardous Substance Storage, Release, or Disposal

Building/ Parcel	Name of Hazardous Substance	Date of Storage, Release, or Disposal	Remedial Actions
Parcel M7W	Explosives Contamination		<ul style="list-style-type: none"> <li>• Soils - The area was used to treat wastewater (red water) containing explosives residues and derivatives produced in the manufacture of raw explosives. In 2001, soil remediation activities performed at the site included removal of all identified explosives contaminated soil to levels below the Remedial Goals established in the ROD for the intended re-use of this property. See the Supplemental Information, <u>Site M7 Easement Area – Additional soil Removal Action at JOAAP</u> (January 2002).</li> <li>• Groundwater - Explosives contaminants have been detected in portions of the glacial drift (shallow) groundwater beneath Site M7. The JOAAP installation-wide ROD selected a Limited Action remedy of Groundwater Management Zones (GMZs), deed and zoning restrictions, periodic inspections, groundwater and surface water monitoring and natural attenuation of the groundwater to ensure compliance. This remedy is currently in place and operating properly and successfully.</li> </ul>
Parcel M8P	Explosives and Metals Contamination		Elevated concentrations of explosives and metals compounds were found in the glacial drift (shallow) aquifer beneath Site M8. The JOAAP installation-wide ROD selected a Limited Action remedy of Groundwater Management Zones (GMZs), deed and zoning restrictions, periodic inspections, groundwater and surface water monitoring and natural attenuation of the groundwater to ensure compliance. This remedy is currently in place



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			and operating properly and successfully.

Note – The M7W Site is not being transferred at this time. The Army is granting an easement on this property but retaining ownership of M7 Site to accommodate ongoing

remedial actions.

**Table 4 - Notification of Petroleum Products Storage, Release, and Disposal**

<b>Building</b>	<b>Name of Petroleum Product(s)</b>	<b>Size and Type of Storage</b>	<b>Date of Storage, Release or Disposal</b>
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There are no remaining buildings or material storage facilities nor any known or documented petroleum products storage, release, or disposal on the Property for easement (M7 West) or transfer (M8P, LT3) in this FOST.

Source: EPAS/EBS Survey, Volume 1 of 2, September 1997.

**TABLE E-1**  
**CHEMICALS USED, STORED, RELEASED, DISPOSED OF ON**  
**PROPERTY TO BE TRANSFERRED TO WILL COUNTY**  
**JOAAP, WILL COUNTY, ILLINOIS**

Section	Building	Substance	Used, Stored, Released, Disposed	Date	Quantity	Action	Reference
L6	70-8	Varnish	Used	1954			DOTA14
		Thinner Vapors	Used	1954			DOTA14
L16	6-2	TNT	Used	1953			DOTA13
	6-4	RDX	Used	1963			DOTA18
		TNT	Used	1953			DOTA13
	6-6	TNT	Used	1953-1954			DOTA13, DOTA14
		Petroleum hydrocarbon thinner	Used	1954			DOTA14
L17	7-2	Tetryl	Used	1950, 1953			DOTA12, DOTA13
		Barium stearate	Used	1953			DOTA13
	7-4	Tetryl	Used	1950, 1953, 1955, 1957,			DOTA12, DOTA13, DOTA15, DOTA16
		Barium Stearate	Used	1953			DOTA13
	7-6	Tetryl	Used	1950, 1953			DOTA12, DOTA13
		Acetone	Used	1950			DOTA12
		Lead Azide	Used	1953			DOTA13
	7-7	Black powder	Used	Unknown			FIEL01
L32	60-11	Chromate Cooling Water	Stored	Present	55 gallons		FIEL01
		Treatment					
		Betz Entec	Stored	Present	25 gallons		FIEL01
M5	1002-10	Dimethylalaninesulfate	Used	1971			AEHA14
	1003-10	Tetryl	Used	1971			AEHA14
		Acetone	Used	1971			DOTA25
	1005-11	Tetryl	Used	1971			AEHA14, DOTA25
	1008-1	TNT	Used	1955			HIST44
	1008-2	Nitric acid	Used	1971			AEHA14
		Sulfuric acid	Used	1971			AEHA14
	1009-1-1	Tetryl	Used	1957			HIST19, HIST20
		Dinitromethylalanine	Used	1957			HIST19, HIST20
		Dichloroethane	Used	1957			HIST19, HIST20
	1009-2-1	Tetryl	Used	1971			AEHA14, DOTA25
M6	722-4	TNT	Used				FIEL01
		Sodium sulfate	Stored	Unknown	2,800 gallons	Two tanks removed	ATEC08
	722-6	Carbon tetrachloride	Stored	Present	1 pint		FIEL01
		Mercury	Stored	Present	3 pounds		FIEL01
	706-3	DNT	Used	Unknown			ARMY01
		Tetryl	Used	Unknown			ARMY01
		Acids	Used	1974			HIST08
		TNT	Used	1974			ARMY01, HIST08
	801-6	Toluene	Used	1971			AEHA14, DOTA25
	801-7	Toluene	Used	1954, 1955			DOTA14, DOTA15
		Nitrotoluene	Used	1954, 1955			DOTA14, DOTA15
		Sulfuric acid	Used	1954, 1955			DOTA14, DOTA15
		Nitric acid	Used	1954, 1955			DOTA14, DOTA15
	801-9	DNT	Stored	Present	313 pounds		FIEL01
	802-2	Sulfuric acid, fuming	Used	1943			HIST38
		Bi-oil (DNT)	Used	1943			HIST38
	802-6	TNT	Used	1971			AEHA14
		Toluene	Used	1971			AEHA14
		Benzene	Used	1971			AEHA14
		DNT	Used	1971			AEHA14, DOTA25
		Nitrogen dioxide	Used	1971			AEHA14, DOTA25
	802-7	Nitrotoluene	Used	1954-1955			DOTA14, DOTA15
		DNT	Used	1954-1955			DOTA14, DOTA15
		TNT	Used	1954-1955			DOTA14, DOTA15
		Nitric acid	Used	1954-1955			DOTA14, DOTA15
		Sulfuric acid	Used	1954-1955			DOTA14, DOTA15

Releases due to spills are discussed in Section 4.22 of the report.

TABLE E-1  
 CHEMICALS USED, STORED, RELEASED, DISPOSED OF ON  
 PROPERTY TO BE TRANSFERRED TO WILL COUNTY  
 JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Substance	Used, Stored, Released, Disposed	Date	Quantity	Action	Reference
	802-8	DNT	Used	1966	616 pounds		HIST12
	802-9	DNT	Stored	Present			FIEL01
	803-6	Nitrotoluene	Used	1971			AEHA14
		DNT	Used	1971			AEHA14
		TNT	Used	1971			AEHA14
	803-7	Nitrogen dioxide	Used	1971	313 pounds		AEHA14
		Nitrotoluene	Used	1954-1955			DOTA14, DOTA15
		DNT	Used	1954-1955			DOTA14, DOTA15
		Nitric acid	Used	1954-1955			DOTA14, DOTA15
	803-9	DNT	Stored	Present			FIEL01
	806-6	TNT	Used	1971			AEHA14, DOTA25
	806-7	TNT	Used	1954-1955			DOTA14, DOTA15
		Nitric acid	Used	1955			DOTA15
		Sulfuric acid	Used	1955			DOTA15
	806-12	TNT	Used	1958			HIST22
	808-3	TNT	Used	1971			AEHA14, DOTA25
	812-2	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-3	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-4	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-5	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-6	Sulfuric Acid	Used	1971			AEHA14, DOTA25
		Nitric acid	Used	1971			AEHA14, DOTA25
		Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-7	Nitric acid	Used	1954-1955			DOTA14, DOTA15
		Sulfuric acid	Used	1954-1955			DOTA14, DOTA15
		Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-8	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-9	Tetranitromethane	Released			Discharge to ditch	UCCI04
	812-10	Tetranitromethane	Released			Discharge to ditch	UCCI04
	870-1	TNT	Used	1977			USOP29
	870-2	TNT	Used	1977			USOP29
	870-3	TNT	Used	1977			USOP29
	870-4	TNT	Used	1977			USOP29
	870-5	TNT	Used	1977			USOP29
	870-6	TNT	Used	1977			USOP29
	872-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
		TNT	Used				BEST10
	872-2	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-3	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-5	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	872-6	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	876-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	876-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	878-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	878-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	879-1	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04

Releases due to spills are discussed in Section 4.22 of the report.

**TABLE E-1**  
**CHEMICALS USED, STORED, RELEASED, DISPOSED OF ON**  
**PROPERTY TO BE TRANSFERRED TO WILL COUNTY**  
**JOAAP, WILL COUNTY, ILLINOIS**

Section	Building	Substance	Used, Stored, Released, Disposed	Date	Quantity	Action	Reference
	879-4	Toluene	Used	Unknown			UCCI04
		Acids	Used	Unknown			UCCI04
	883-1	Waste acid	Used	Unknown			UCCI04
	883-2	Waste acid	Used	Unknown			UCCI04
M7	860-2	Sulfuric acid	Used	1971			AEHA14
	861-1	TNT	Disposed	Unknown		Incinerator	THAM01
	861-2	TNT	Disposed	Unknown		Incinerator	THAM01
	861-3	TNT	Disposed	Unknown		Incinerator	THAM01
	861-4	TNT	Disposed	Unknown		Incinerator	THAM01
	861-5	TNT	Disposed	Unknown		Incinerator	THAM01
	861-6	TNT	Disposed	Unknown		Incinerator	THAM01
M8	302-1-1	Acid	Used				UCCI04
	302-3-1	Nitric acid	Stored	1971			AEHA14
	303-3-1	Nitric acid	Used	1954-1955,			AEHA14, DOTA14,
				1971			DOTA15
		Sulfuric acid	Used	1971			AEHA14
	308-3-6	Sulfuric acid	Used	1971			AEHA14
	354-9	Sulfur	Stored	Present			FIEL01
	1501	Sulfur	Used	1954			UCCI04, DOTA14
		Sulfuric acid, fuming	Stored	1955			DOTA15
	1501-1	Sulfur	Used	Unknown			UCCI04
	1502	Sulfur	Used	Unknown			UCCI04
	1502-1	Sulfur	Used	Unknown			UCCI04
	1502-2	Sulfur	Used	Unknown			UCCI04
M13	503-1-2	Cosmoline 1102	Stored	Present			FIEL01
	812-1	Tetranitromethane	Released			Discharge to ditch	UCCI04
M16	413-1	Lime	Used	1955			DOTA15
		Alum	Used	1955			DOTA15
	716-3	Paint pigments	Used	1955			DOTA15
		Paint Thinner	Used	1955			DOTA15
		Chlorinated hydrocarbons	Used	1955			DOTA15
		Paint	Used	1971			AEHA14
		Paint	Stored	Present	20 gallon		FIEL01
		Oil	Stored	Present	55 gallon		FIEL01
M103	TS-1230	Herbacides	Used	Unknown			USOP52
		Insecticides	Used	Unknown			USOP52
		Ammonia	Used	Unknown			USOP52
M104	411	Chlorine	Stored	1990			UCCI01
	505-2	Chlorine	Stored	1990			UCCI01
	715-12	Benzene	Stored	Unknown			FIEL01
	717	Lead	Used	1971			AEHA14
		Methyl chloroform	Used	1971			AEHA14
		Perchloroethylene	Used	1971			AEHA14
		Stoddard solvent	Used	1971			AEHA14
		Cadmium	Used	1971			DOTA25
		Paints and thinners	Used	1954			DOTA14
		Chlorinated hydrocarbon solvent	Used	1955			DOTA15
		Oils	Used	1955			DOTA15
		Coolants	Used	1955			DOTA15
	718-1	Chlorinated hydrocarbons	Used	1954			DOTA14
		Solvent	Stored	Present	20 gallon		FIEL01
M115	412-1	Fuel oil	Stored	1991	1,000 gallons	Tank removed	BEST02

Releases due to spills are discussed in Section 4.22 of the report.

MARY ANN STUKEL  
WILL COUNTY RECORDER  
AFFIDAVIT OF METES AND BOUNDS

STATE OF ILLINOIS )  
COUNTY OF WILL )SS

Barbara Pierce being duly sworn on oath, states that affiant resides  
at 1031 Ottawa St, Joliet, IL 60432. That the attached deed is not in violation  
of Section 1 of the Plat Act [765 ILCS 205/1] for one of the following reasons:

1. The division or subdivision of land into parcels or tracts of 5.0 acres or more in size which does not involve any new streets or easements of access.
2. The division of lots or blocks of less than one (1) acre in any recorded subdivision which does not involve any new streets or easements of access.
3. The sale or exchange of parcels of land between owners of adjoining and contiguous land.
4. The conveyance of parcels of land or interests therein for use as right of way for railroads or other public utility facilities and other pipe lines which does not involve any new streets or easements of access.
5. The conveyance of land owned by a railroad or other public utility which does not involve any new streets or easements of access.
6. The conveyance of land for highway or other public purposes or grants or conveyances relating to the dedication of land for public use or instruments relating to the vacation of land impressed with a public use.
7. Conveyances made to correct descriptions in prior conveyances.
8. The sale or exchange of parcels or tracts of land following the division into no more than two (2) parts of a particular parcel or tract of land existing on July 17, 1959 and not involving any new streets or easements of access.
9. The sale of a single lot of less than 5.0 acres from a larger tract when a survey is made by an Illinois Registered Land Surveyor; provided, that this exemption shall not apply to the sale of any subsequent lots from the same larger tract of land, as determined by the dimensions and configuration of the larger tract on October 1, 1973, and provided also that this exemption does not invalidate any local requirements applicable to the subdivision of land.
10. This conveyance is of land described in the same manner as title was taken by grantor(s).

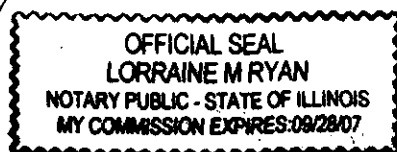
CIRCLE NUMBER ABOVE WHICH IS APPLICABLE TO ATTACHED DEED

AFFIANT further states that affiant makes this affidavit for the purpose of inducing the Recorder of Deeds of Will County, Illinois, to accept the attached deed for recording.

SUBSCRIBED AND SWORN TO BEFORE ME

This 13th day of February, 2004  
Lorraine M. Ryan  
Notary Public

Barbara Pierce  
AFFIANT



**Attachment 13**  
Interview Questions and Answers

**Second Five-Year Review Report  
Interview Questions  
Joliet Army Ammunition Plant  
Wilmington, Illinois**

Name of Person Interviewed: Mr. Alvin Abbott

Title: Reverend Alvin Abbott

Company/Organization: Former Co-Chair of Restoration Advisory Board

Date: October 21, 2008

**Contact Information**

Telephone Number: 815-725-6848

Fax Number: Same - (notify before sending)

Email Address: aldonnaabbott@aol.com

Street Address: 13 Manor Court

City, State, Zip: Joliet, Illinois 60436

**Interview Questions – Community**

**1. What is your overall impression of the project?**

I am still extremely proud of the team that has been working on the project:

- Army
- Regulators
- Contractors
- United States Army Corps of Engineers

It is a working team that has worked together to get the project done. In my opinion they have respected the community's input.

**2. What affects have project operations had on the surrounding community?**

It has lead to the development of the Midewin National Tall Grass Prairie. It helped in the development of Elwood, but Elwood may now be restricted by the surrounding commercial development. The amount of volunteerism is strong. There was 495 acres dedicated to the VA Cemetery. It was one of the first things done. The operations related to Centerpoint and the WCLF have increased truck traffic, but that has created many new jobs for the community.



**3. Are you aware of any community concerns regarding the project or its operation and administration? If so, please give details.**

Traffic is a big issue. The truck traffic is horrendous. Interstate 55 is a mess. The traffic created by Centerpoint is way beyond what was anticipated.

There is concern over access, are we protecting people properly? Some restricted areas are still accessible by all-terrain vehicles (ATVs) and snowmobiles.

**4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing or emergency responses from local authorities? If so, please give details.**

The only thing that I'm aware of was the stealing of a bronze statue (monument to deaths). The statue was rededicated this year and the old one was also found.

**5. Do you feel well informed about the project activities and progress?**

Yes, we are still receiving copies of the correspondence between the Army and the EPA.

We told both USACE and MWH, that written reports are nice, but show us what you are doing. When the first removal of oil from switchboxes occurred, RAB asked can we go see this activity. Explanation was that OSHA has four zones and you must pass certain requirements before entering these zones. So they video taped it, or brought in pictures in PowerPoint presentations. Tour of the Biofacility was good. The RAB was a part of that. There has been good commitment to illustrate and document progress.

**6. Do you have any comments, suggestions, or recommendations regarding the project management or operations?**

Yes, the MWH employees were fabulous; they had very qualified employees who set a standard. All have done a fantastic job.

People running the show are very good at what they do and communicating this to the people involved. He has watched these people since it has been organized. Team approach, decisions being made for the best of the project. I contribute this to the high amount of money dedicated to the site.

There was a good celebration for the RAB last March. The RAB received lots of acknowledgement and appreciation.

**7. Are you aware of any complaints about the individual sites and/or the project being filed?**

I am not aware of any.

**Second Five-Year Review Report**  
**Interview Questions**  
**Joliet Army Ammunition Plant**  
**Wilmington, Illinois**

Name of Person Interviewed: Arthur M. Holz

Title: Site Manager/Commander's Representative

Company/Organization: Joliet Army Ammunition Plant

Date: October 21-23, 2008

**Contact Information**

Telephone Number: 815-423-2871

Fax Number: 815-423-2871

Email Address: arthur.m.holz@us.armv.mil

Street Address: 29401 South Route 53

City, State, Zip: Wilmington, IL 60481-8879

**Summary of Conversation**

On October 22 and 23, 2008, Gerald Girardot and Tim Cullen of Aerostar Environmental Services, Inc. discussed the status of sites at the JOAAP with Arthur Holz. According to Arthur Holz, each remedy that is in place, including those actions that are fully complete, are performing as expected. Sites L17, M5, and M16 have been closed. Sites L11 and L16 were closed in December 2003. Sites M7 and M8 were closed prior to 2004. The Final Closure Report for Site M6 was completed in June 2006. The Final Closure Report for Sites L1, L7, L8, L9, L10, L14, and M2 was completed in October 2006. The Final Completion Reports for Sites L4 and M9 were completed in 2007. The Draft Final Closure Report for Sites L2, L5, L23A, M3, M4, and M12 was completed in March 2008. Additional RA activities were conducted in the junk pile area of Site L5 during FY2008. The Final Closure Response for Site M1 is complete and the report is in draft. Draft Reports for Sites M11 and M13 are in progress. The Draft Report for Site L3 is also in progress.

**Second Five-Year Review Report**  
**Interview Questions**  
**Joliet Army Ammunition Plant**  
**Wilmington, Illinois**

Name of Person Interviewed: Mr. Dean Olson

Title: Waste Services Manager

Company/Organization: Will County Waste Services

Date: October 22, 2008

**Contact Information**

Telephone Number: 815-727-8834

Fax Number: 815-722-3410

Email Address: dolson@willcountylanduse.com

Street Address: 58 E. Clinton St.

City, State, Zip Joliet IL 60432

**Interview Questions - Transferred Sites**

**1. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office/organization/company regarding the site's historical soil contamination and remediation activities?**

Within the main land area of WCLF, there was a clean up for an oil spill near the old maintenance shop area of the site. This oil spill area was cleaned up and documented by the Army during a removal action in 1996 or 1997 (Not sure of the exact year).

We are in contact with Mr. Art Holz regarding activities involving building demolition, development activities, and road easements.

I believe there were clean up activities conducted by the Army to remove asbestos containing material (ACM) from some of the buildings within the WCLF boundaries. The ACM was removed offsite prior to the building demolition.

**2. Have there been any complaints, violations, or incidents (related to the site's historical soil contamination and remediation activities) requiring a response by your office/organization/company?**

Not that I am aware of.

**3. Are you aware of any complaints (pertaining to historical site contamination and remediation activities) being filed?**

No complaints have been filed that I am aware of.

**4. Are you aware of any changes regarding, or concerns about, the institutional controls and/or access controls at the site?**

There are no changes regarding or concerns about institutional or access controls at the site. The site is secured at night at both the Prairie View Lane entrance, and the Main landfill entrance. The site is used only for landfill operations. All secondary access gates are padlocked when not in use, and site inspections conducted on a regular basis to verify that they remain locked. There is limited access to the forest service. No public access.

There is a plot of land within the site fencing that is approved for row crop farming. The farmer still currently farms this plot of land, but due to the expansion of the landfill; this area will soon be reduced from approximately 160 acres to 120 acres.

**5. Are you aware of any projected changes in land uses within the site?**

The landfill will remain in operation until 2027. After 2027, the landfill operations will cease and the site will be turned over to the Will County Forest Preserve for recreational use.

**6. Are you aware of any projected changes in land uses surrounding the site?**

I do know that the Army has given land to JADA and that JADA sold that land to Prologic. There is also scattered residential property to the south of Arsenal Road.

**7. Have there been any unusual or unexpected activities or occurrences at the site related to historical site contamination or remediation activities?**

Only the asbestos issues in the buildings that was mentioned earlier. No other occurrences that I am aware of.

**8. Have there been any instances or observations of remaining contamination at the site?**

Nothing new has occurred. If anything does occur, WCLF will contact the Army immediately.

The acceptance of waste (ash) from the Army has been somewhat problematic in terms of paperwork, volume of work, and material handling. The ash was like concrete and had to be broken up by Waste Management.

## **Attachment 14**

Review of Risk Based Remediation Goals for the Groundwater OU

## **Review of Risk-Based Remediation Goals Developed for Groundwater OU**

An evaluation was completed to determine whether the groundwater remediation goals (RGs) developed within the ROD for industrial sites at JOAAP would still be protective of human health. The general process used to conduct this evaluation conforms to Appendix G of the Comprehensive Five-Year Review Guidance (USEPA 2001).

The groundwater RGs contained within the ROD were based upon the State of Illinois Class I and Class II groundwater quality standards where they were available and risk-based groundwater concentrations (RBCs) for an industrial worker scenario.

The Class I and Class II standards were reviewed, and IEPA was consulted to verify that no additional changes in standards for COCs had occurred during the current five year review period.

### **Land Use Assumptions**

Based on a review of the current plans for site usage the land use for the sites being considered under this review remains industrial in nature. Therefore, the industrial worker groundwater RBCs and the Class I/II groundwater standards used in part to develop the industrial RGs would still be applicable, and would be the most conservative foreseeable scenario for evaluating the protection of human health on industrial properties at JOAPP. The industrial worker groundwater RBCs were developed to protect workers that would be employed for a long period of time (i.e., up to 25 years) at a property being redeveloped at JOAPP for industrial/commercial use, and where groundwater would be used as a source of drinking water. The Class I standards are applicable for all potable water within the State of Illinois to protect human health.

### **Risk Assessment Methods**

The risk assessment methods that were used to develop the groundwater RBCs for industrial workers are still currently used within the field of risk assessment at a variety of types of sites for developing groundwater RBCs based on groundwater ingestion. The groundwater RBCs were developed assuming groundwater would be used as a source of drinking water, which is considered to be a very conservative assumption. Institutional controls have been put into place to eliminate the use of groundwater within the groundwater management zones (GMZ). There are currently no exceedances of the groundwater RGs outside the GMZs. Also, the lands outside of the GMZs are either zoned industrial or part of the Midewin National Tall Grass Prairie, so the groundwater RBCs would be protective in these areas too.

**Exposure Assumptions** -- The exposure assumptions used to develop the industrial worker groundwater RBCs were reviewed and have not changed.

**Toxicity Values** -- the toxicity values used to develop the groundwater RBCs were evaluated for those groundwater chemicals of concern (COCs) defined on Table 6-2 of the ROD. These groundwater COCs are those chemicals that were determined based on the results of the risk assessment conducted for JOAPP to exceed specific risk goals (i.e., cancer risk of  $1 \times 10^{-6}$  or hazard quotient of one). None of the toxicity factors used to develop the RBCs for the groundwater COCs have changed, such that the resultant groundwater RBC would be lower (i.e., be more stringent). It should be noted that the oral reference dose for 1,3,5-trinitrobenzene has increased from  $5 \times 10^{-5}$  to  $3 \times 10^{-2}$ , which would dramatically increase the RBC for this analyte. Therefore the current risk-based groundwater RG for this analyte is likely much lower than that required to protect human health.

### **Review of Illinois Class I and Class II Groundwater Quality Standards**

The Class I (Title 35, Chapter I, Part 620, Section 620.410 of the IL administrative Code) and Class II (Title 35, Chapter I, Part 620, Section 620.420 of the IL administrative Code) groundwater standards were reviewed to determine if any significant changes has occurred in the standards. The Class I Groundwater Quality Standards for Potable Resource Groundwater is the same as those present in the ROD. The Class II Groundwater Quality Standards for General Resource Groundwater are the same except that values for silver, 1,1-dichloroethane, and trichlorethene were not listed, and the value for 1,1,2-trichloroethane has dropped from 50 µg/L to 5 µg/L. These small changes to the Class II groundwater standards do not affect the protectiveness of the originally selected groundwater standards, as there is a more restrictive Class I standard available for each of the analytes where there has been a change in the status of their Class II standard. Within the ROD, it was specified that the MNA be continued until the groundwater RGs are achieved within a GRU, and this would be interpreted as the most restrictive of either the Class I or Class II standard where they are available for an analyte.

### **Conclusions**

Based on review of the land use considerations at the industrial sites, methodology used to estimate the original health-based RBCs, and the exposure and toxicity assumptions employed, the groundwater RGs presented in the ROD would be considered to be health protective. In addition, the Class I Illinois groundwater standards have not changed, and the Class II groundwater standards have changed only slightly, but would have no impact on the protectiveness of the remedy.



**Attachment 15**  
Comments received from Support Agencies



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

AUG 10 2009

August 4, 2009

REPLY TO THE ATTENTION OF: SR-6J

Mr. Arthur Holz  
Commander's Representative  
Joliet Army Ammunition Plant  
29401 South Route 53  
Wilmington, IL 60481-9979

Subject: **U.S. Army Responses to U.S. EPA Comments on the Draft Final Second Five-Year Review Report, Soils Operable Unit and Groundwater Operable Unit, Joliet Army Ammunition Plant, Wilmington, Illinois, April 2009**

Dear Mr. Holz:

The U.S. Environmental Protection Agency (EPA) has received the U.S. Army's (Army) responses to our comments (RTCs) on the **Draft Final Second Five-Year Review Report, Soils Operable Unit and Groundwater Operable Unit** (Five Year Review Report), which was prepared for the U.S. Army Contracting Agency by Aerostar Environmental Services, Inc. We received the RTCs, along with revised documents containing changes made in response to EPA and other reviewers' comments, by e-mail, directly from Aerostar, on August 3, 2009.

Based upon our review of the RTCs, the Army has adequately addressed EPA's comments. EPA has no additional comments on the Five Year Review Report.

If you have any questions, or require additional information, please feel free to contact me by phone at (312) 353-5577 or by e-mail ([barounis.thomas@epa.gov](mailto:barounis.thomas@epa.gov)).

Sincerely,

A handwritten signature in cursive script, reading "Tom Barounis", is positioned below the word "Sincerely,".

Tom Barounis  
Remedial Project Manager

cc: Nicole Wilson, IEPA  
Andrew Maly, USACE  
Andrew B. Evens, USACE  
Gerry Girardot, Aerostar

**Response to Comments**  
**Draft Final Second Five-Year Review Report Groundwater Operable Unit**  
**Joliet Army Ammunition Plant (JOAAP) Wilmington, Illinois**

Reviewer	Section/ Page No.	Reviewer Comment	Response	Date Closed
Nicole M. Wilson, P.E.	1 <a href="#">Executive Summary, Page 3</a>	The text states the format used is the same as the first 5-Year Review. Illinois EPA was under the impression that the new U.S. EPA 5-Year Review format was used for this document. Please clarify	Comment noted. Reference to document the format were deleted from this part of the Executive Summary on page 3	
Nicole M. Wilson, P.E.	2 <a href="#">Section 3.2.1.2</a>	Please revise the text to reflect the closure document is still only at the draft final stage, not final.	The text on page 23 has been revised to reflect the closure document is at the draft final stage.	
Nicole M. Wilson, P.E.	3 <a href="#">Section 3.2.1.3</a>	Soil Remedial Unit (SRU) 6 soil remedies were final in the 1998 Record of Decision (ROD), not the 2004 ROD. Please revise accordingly.	The text on page 24 has been revised to clarify which RAs and SRUs were interim and which were final in the 1998 ROD.	
Nicole M. Wilson, P.E.	4 <a href="#">Section 3.2.2.1</a>	SRU 6 soil remedies were final in the 1998 ROD, not the 2004 ROD. Please revise accordingly.	The text on page 27 has been revised accordingly	
Nicole M. Wilson, P.E.	5 <a href="#">Section 3.2.2.3</a>	The remedy for Site M6 was finalized in the 1998 ROD not the 2004 ROD. Please revise accordingly.	The text on page 28 has been revised accordingly	
Nicole M. Wilson, P.E.	6 <a href="#">Section 3.2.2.6</a>	SRU 6 soil remedy for Site M13 was final in the 1998 ROD, not the 2004 ROD. Please revise accordingly.	The text on page 30 has been revised accordingly	
Nicole M. Wilson, P.E.	7 <a href="#">Section 3.2.3.1</a>	Please revise the text to reflect the closure document is still only at the draft final stage, not final.	The text on page 32 has been revised to reflect the closure document is at the draft final stage.	
Nicole M. Wilson, P.E.	8 <a href="#">Section 3.2.3.2</a>	The remedy for Site M10 was finalized in the 1998 ROD not the 2004 ROD. Please revise accordingly.	The text on page 32 has been revised accordingly	
Nicole M. Wilson, P.E.	9 <a href="#">Section 4.0</a>	Not all soil remedies had interim status. Many went final in the 1998 ROD. Please revise accordingly.	Section 4.0 has been revised accordingly on page 34.	
Nicole M. Wilson, P.E.	10 <a href="#">Section 4.1</a>	The 2004 ROD was not a revision of the 1998 ROD. The two RODS are stand alone documents. Please revise accordingly.	Section 4.1 has been revised accordingly on page 34.	
Nicole M. Wilson, P.E.	11 <a href="#">Section 4.2</a>	Remedial design work occurred several times after 1999. Please revise accordingly.	The text has been revised on page 36 to reflect the initial RD in 1998-1999 and additional RA work plans for individual sites prepared between 1999 and 2007.	
Nicole M. Wilson, P.E.	12 <a href="#">Section 5.0</a>	Please review the section for typographical errors.	This Section has been reviewed and corrected.	
Nicole M. Wilson, P.E.	13 <a href="#">Section 5.0</a>	There are other sites where final closure for the soils has not been achieved. Please review and revise accordingly.	Reference to Site L2 in GRU1 and M3 in GRU2 have been added to the discussion on page 50 of SRU sites in the GOU that have not achieved final closure status.	
Nicole M. Wilson, P.E.	14 <a href="#">Section 5.0</a>	Illinois EPA suggests adding discussion on the new Long-Term Monitoring Plan under development for the groundwater remedy.	Section 5.0 has been revised accordingly on page 50 .	
Nicole M. Wilson, P.E.	15 <a href="#">Section 6.2</a>	Documents are sent to the Restoration Advisory Board (RAB) secretary, not the entire RAB. Please revise accordingly.	Section 6.2 has been revised accordingly on page 51.	
Nicole M. Wilson, P.E.	16 <a href="#">Table 10</a>	The sampling at Site M3 was supposed to start up again after remedial actions took place, but this table labels the frequency of sampling as none. Please revise accordingly.	Following the RA, key wells were sampled in Spring 2008, with non-detectable results for VOCs. If similar results are obtained for the Fall 2008 sampling event, no further monitoring should be required for Site M3. These results were not available for this FYR. Table 11 has been revised to reflect the requirements (semi-annual) as supported by available data.	
Nicole M. Wilson, P.E.	17 <a href="#">Section 6.6</a>	1. The RAB has not been disbanded yet. Please revise the text to delete the "former" label.	Section 6.6 has been revised accordingly on page 58	

**Response to Comments**  
**Draft Final Second Five-Year Review Report Groundwater Operable Unit**  
**Joliet Army Ammunition Plant (JOAAP) Wilmington, Illinois**

Reviewer	Section/ Page No.	Reviewer Comment	Response	Date Closed
Nicole M. Wilson, P.E.	18 <u>Section 6.6</u>	Since the county was contacted for interview, why was the USDA or JADA not also contacted?	The USDA publishes an annual report with comprehensive information relating to progress and issues. Centerpoint properties, the successor to JADA in the majority of the MFG area prepares and submits reports annually. Based on our review, additional recommendations have been made in Sections 4.4.5 on page 48 and Section 9.0 on page 107 to enhance the communication, monitoring and annual reporting of adherence to institutional controls.	
Nicole M. Wilson, P.E.	19 <u>Section 7.2.2</u>	Please revise the text to reflect the closure document is still only at the draft final stage, not final. The date of the document is also incorrect.	The text has been revised on page 72 to reflect the closure document is at the draft final stage.	
Nicole M. Wilson, P.E.	20 <u>Section 7.3.3.3</u>	Please review the section for typographical errors.	Section 7.3.3.3 has been revised accordingly.	
Nicole M. Wilson, P.E.	21 <u>Section 7.3.6</u>	Please review the section for typographical errors.	The reference to Site M1 soils has been changed to Site M13 soils on page 99.	
Nicole M. Wilson, P.E.	22 <u>Section 7.4.1</u>	1. Please revise the text to reflect the closure document is still only at the draft final stage, not final. The date of the document is also incorrect.	The text has been revised on page 101 to reflect the closure document is at the draft final stage.	
Nicole M. Wilson, P.E.	23 <u>Attachment 1, Groundwater Remedial Unit (GRU) 3</u>	The section is empty. Please include the information.	GRU3 Site Maps are included in all copies of the Final Document	
Nicole M. Wilson, P.E.	24 <u>Attachment 3</u>	Which site does the reference for the MKM, September 2008, Draft Remedy in Place Report relate to? Please revise accordingly.	The reference for the MKM, September 2008, Draft Remedy in Place Report refers to M11. This reference has been corrected.	
Nicole M. Wilson, P.E.	25 <u>Attachment 4, Landfill Monitoring</u>	This section only presents the information for Site M11. What about site M13 and L3? The landfill related sampling is being tracked independently of the GRU data, even when the two overlap. Please revise accordingly.	No independent datasets were available for landfill-related groundwater sampling at M13 and L3 at the time of our review.	
Nicole M. Wilson, P.E.	26 <u>Attachments 5, 6, and 7</u>	1. The second/third pages of these attachments are empty pages that state error across the top. Please review and make sure the intended information is included.	Comment Noted- All attachments will be double checked for print errors.	
Nicole M. Wilson, P.E.	27 <u>Attachment 12</u>	Was the 2008 letter ever received from Center Point?	The U.S. Army indicated that the 2008 letter was not received from Center Point. This has been identified as an issue and recommendations for followup are included in Section 4.4.5 and Section 9.0.	
Nicole M. Wilson, P.E.	28 <u>Attachment 13, Art Holz Interview</u>	1. Please review for typographical errors. Site L1 is discussed twice, but Site M1 is not mentioned at all.	The text has been revised to indicate that The Final Closure Response for Site M1 is complete and the report is in draft.	

**Response to Comments**  
**Draft Final Second Five-Year Review Report Groundwater Operable Unit**  
**Joliet Army Ammunition Plant (JOAAP) Wilmington, Illinois**

Reviewer	Section/ Page No.		Reviewer Comment	Response	Date Closed
Wade A. Spang MNTP	1	General	Contractors have performed some work within the L34 area in 2007. However, L34 area was not included in either the groundwater or soil report. We recommend this area be added to the appropriate report(s)?	L34 is not part of either SOU or GOU, it was worked on under MMRP. A contract has been awarded to prepare an Action Memorandum for the MMRP area including L34.	
Wade A. Spang MNTP	2	General	Effective erosion control measures are needed along the Prairie Creek stream bank in the areas of L34 and L3. The erosion problems in these areas are increasing and could impose greater water quality problems if not controlled or remedied. The area of the adjacent landfill is especially susceptible to erosion.	L34 is not part of either SOU nor GOU but will be included in an Action Memorandum currently being prepared. Erosion at L3 has been raised as an issue in the Five Year Review for the SOU	

**Response to Comments**  
**Draft Final Second Five-Year Review Report Groundwater Operable Unit**  
**Joliet Army Ammunition Plant (JOAAP) Wilmington, Illinois**

Reviewer	Section/ Page No.	Reviewer Comment	Response	Date Closed
Tom Barounis USEPA RPM	1	General  At numerous points throughout the Soils Operable Unit (SOU) and Groundwater Operable Unit (GOU) FYR, the text is anachronistic, referring to things that have already taken place as if they are to be done in the future. The FYR needs to be proofread and the anachronistic references corrected.	Review entire Doc after all other changes. We will have to make our own General comment at the top of the list to explain that we made minor changes throughout the doc to correct anachronisms	
Tom Barounis USEPA RPM	2	General  The discussion of institutional controls (ICs) should be simplified in some ways, and expanded in others. There are basically two IC mechanisms – deed restrictions for property transferred out of federal ownership; and a land use plan for property retained by the federal government, specifically the Department of Agriculture. In both cases the objectives are to prevent the use of groundwater and to prevent residential development. The basic pattern regarding the ICs tends to get lost when the remedy for each area is addressed separately with each remedy description containing a single sentence about ICs.  It was not clear whether deed restrictions are already in place or not. If they are, then the FYR needs to state whether they have been properly recorded and are free and clear of all liens and encumbrances; that they were properly executed. The FYR should indicate whether there is a map of the restricted areas with GIS coordinates and should state whether existing controls cover the entire area that needs to be restricted and whether the deed restrictions clearly state the IC objectives/performance standards/restrictions.  Finally, the FYR does talk about how the Army is monitoring compliance with ICs, but this could be amplified somewhat. For example, the document, e.g., RD/RA work plan, which sets forth the IC monitoring requirements, should be included as an attachment to the FYR.	A number of reviewers have made comments with respect to ICs. In order to coherently address these comments a new Section (4.4 INSTITUTIONAL CONTROLS ) has been added to the text, and a comprehensive set of figures and deeds have been included as reference material in Attachment 12. Section 4.4 addresses all comments received relative to ICs. Issues and recommendations for followup are included in Section 4.4.5. These recommendations were summarized in the Tables in Sections 8 and 9.	
Tom Barounis USEPA RPM	3	General  For several of the issues listed in the "Issues" table, the milestone date is listed as "immediately." As these milestones will be tracked, the Army should exercise its best efforts and identify a planned date for these milestones.	Revised milestone dates have been included in Table 18 on Page 107.	
Tom Barounis USEPA RPM	4	General  The document includes a map of the JOAAP Site with each of the individual LAP and MFG sites illustrated (Attachment 2). However, there does not appear to be a single map, or three maps, illustrating the three Groundwater Remediation Units (GRUs). Such a map, or three maps, would be helpful and should be included.	Attachment 1-2 has been modified to depict the three Groundwater Remediation Units (GRUs)	
Tom Barounis USEPA RPM	1	Section 3.2.2.3  Site M6 (TNT Ditch Complex), 1 <sup>st</sup> Par. (p.26): It is stated that, "The site is planned to be transferred to the State of Illinois..." and "Developments within the industrial park are to include..." It appears that these statements need to be updated.	M6 has not been transferred. The text on page 28 has been revised to reflect the correct chronology for the surrounding rail development.	
Tom Barounis USEPA RPM	2	Section 3.2.2.4  Site M7 (Red Water Area), 1 <sup>st</sup> Par. (p.27): It is stated that, "Site M7 is in the process of being transferred to the State of Illinois..." Has this transfer already happened? If so, this statement should be updated.	The Red Water Area has not been transferred. The text on page 29 has been revised to reflect the correct chronology for the surrounding rail development.	
Tom Barounis USEPA RPM	3	Section 3.2.3.2  Site M10 (Toluene Tank Farm)(p.31): The site is not located on the general site map (Attachment 1-2).	Site M10 (Toluene Tank Farm) has been added to the figure in Attachment 1-2.	

**Response to Comments**  
**Draft Final Second Five-Year Review Report Groundwater Operable Unit**  
**Joliet Army Ammunition Plant (JOAAP) Wilmington, Illinois**

<b>Reviewer</b>	<b>Section/ Page No.</b>	<b>Reviewer Comment</b>	<b>Response</b>	<b>Date Closed</b>
Tom Barounis USEPA RPM	4	Section 6.4.1  Trend Analysis (p.39): The FYR should provide a brief explanation for the discernible relationship between groundwater elevation and contaminant concentration.	The discussion has been augmented on page 52, as follows: Higher contaminant concentrations are generally detected during sampling events where the groundwater elevation is observed to be higher; however, the observed trends in this relationship may be inverse, from site to site. A possible explanation for this disparity may be that the groundwater acts to flush or desorb contaminants from the formation and into the groundwater at some sites and may serve to dilute contaminants at other sites.	
Tom Barounis USEPA RPM	5	Section 7.3.3.3 , p.81 top of page: Capitalize "tribune."	The text has been revised accordingly on page 92.	
Tom Barounis USEPA RPM	6	Section 7.3.3.3 , p.81 2 <sup>nd</sup> Par., last sentence: "Controls" should be " <u>Institutional</u> Controls."	The text has been revised accordingly on page 93.	
Tom Barounis USEPA RPM	7	Section 7.4.4.1, p.90 6 <sup>th</sup> Par., 3 <sup>rd</sup> sentence: Delete "are conducted" at the end of the sentence.	The text has been revised accordingly on page 102	
Tom Barounis USEPA RPM	8	Section 11.0 Next Review (p.97): The correct date for the next FYR should be May 2014.	The text has been revised accordingly on page 111	
Tom Barounis USEPA RPM	9	Attachment 1 GRU3 site Maps, Sites M3 and M10: There are no maps in this section.	Figures depicting Sites M3 and M10 have been included in Attachment 1.	

**Response to Comments**  
**Draft Final Second Five-Year Review Report Groundwater Operable Unit**  
**Joliet Army Ammunition Plant (JOAAP) Wilmington, Illinois**

Reviewer	Section/ Page No.	Reviewer Comment	Response	Date Closed
U.S. EPA Region 5 ICC	1	General Comments	Add "ICs" and "LUCs" as acronyms in the table.	The acronym list has been updated
U.S. EPA Region 5 ICC	2	General Comments	<p>From an IC or land use control perspective, it is important that all the Site areas that are owned by the U.S. Army and those formerly owned by the U.S. Army that do not allow for Unlimited Use and Unrestricted Exposure (UU/UE) are identified as having or needing an IC (or land use control). Furthermore, any of the areas where contamination has come to be located such as the groundwater plume areas, must be identified as having or needing an IC. Then, those areas must be subjected to a further IC evaluation. <b>Either this document should be revised or a specific IC document should be prepared to discuss the ICs in place and to present the evaluation of each IC as is required by EPA's policy.</b> Table 10 Summary of Implemented Institutional for GOU Sites is a very useful table. However, more information is needed relative to ICs to document that ICs have been evaluated.</p> <p>Apparently, the LUCs reside in the various documents prepared by the industrial property owners and the Department of Agriculture to which they refer in the LUC attachment. Any LUCs on property which the Army still retains would/should be addressed in the Army's Base Plan. All of the LUCs should be collated into one place so that it is clear what IC exists and so that further evaluation can be conducted.</p>	<p>A number of reviewers have made comments with respect to ICs. In order to coherently address these comments a new Section (4.4 INSTITUTIONAL CONTROLS ) has been added to the text, and a comprehensive set of figures and deeds have been included as reference material in Attachment 12. Section 4.4 addresses all comments received relative to ICs. Issues and recommendations for followup are included in Section 4.4.5. These issues and recommendations were summarized in the Tables in Sections 8 and 9.</p>
U.S. EPA Region 5 ICC	3	General Comments	<p>Need to Evaluate ICs during the FYR. For the property owned by the Federal Facility, EPA must be assured that the base us plan includes a provision that proper ICs will be implemented, and subject to EPA's review, if and when the property is transferred to a private entity. This should be addressed in the Five Year Review report (or a supplement to the report or another document dedicated to ICs). Additionally, for any areas of the Site where the Federal Facility has transferred ownership to a private entities and areas where contamination has come to be located off the Federal Facility property, IC evaluation activities must be conducted as part of this Five Year Review process just as the other private Sites are evaluated. Under EPA's IC strategy discussed further below, EPA has committed to assuring that comprehensive IC evaluations are conducted during this Five Year Review cycle. Under EPA's As discussed, in EPA's IC strategy EPA has committed to assuring that comprehensive IC evaluations are conducted during the current Five Year Review cycle. Specific comments are presented below regarding how to address the evaluation of ICs.</p> <p>The IC Strategy serves as the road map for ensuring that institutional controls are successfully implemented at Superfund sites, with an emphasis on evaluating ICs at sites where all construction of all remedies is complete (construction complete sites). Specifically, it was decided that the IC evaluations should occur during the Five Year Review process. Subsequent to the Strategy, in October 2004, EPA Region 5 prepared a Regional Work plan to address the IC evaluations during the Five Year Reviews. Additionally, to ensure consistency in the Five Year Reports, Region 5 updated the model FYR in 2007 to include specific information about ICs. ((An example of an IC section from the Region 5 model is</p>	<p>Compliance with the LURs is well documented in the Prairie Plan, and to a large extent in the annual report submitted by CenterPoint. However it is unclear whether the Centerpoint report is applicable to land currently owned or leased by others. This issue should be clarified in future annual reports submitted by Centerpoint. Additional reports from JADA its successors, or subsequent owners may be required for LUR land in the MFG and LAP Areas. Subsequent owners include BNSF and Prologis, Inc.</p> <p>These issues are discussed in detail in a new Section (4.4 INSTITUTIONAL CONTROLS ) which has been added to the text, with associated documentation in Attachment 12.</p>



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U.S. EPA Region 5 ICC	4	<p>General Comments</p> <p>An Institutional Controls Section should be included in the Report. In the FYR report, there should be a specific section entitled Institutional Controls. The Section should summarize the existing ICs, discuss what evaluations have been performed to date and then discuss follow-up actions needed. If requested, EPA can assist in drafting an Institutional Controls section that can be used to insert in the document. Many of these questions and concerns provided below can be address as a follow-up to the FYR. Therefore, it is suggested that we request that the Federal Facility conduct an IC study to include specific IC evaluation activities and a draft IC plan for follow-up activities for EPA's review and approval. Many of the federal facilities will develop Land Use Control Plans and that could be the follow-up required by the FYR</p> <p>Regarding the IC section to be included in the FYR document, that section should include the following.</p> <ul style="list-style-type: none"> <li>- a statement that ICs are required to ensure the protectiveness of the remedy.</li> <li>- the definition of IC should be provided. Following is the definition that EPA prefers.</li> </ul> <p>Institutional controls (ICs) are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure (UU/UE).</p> <ul style="list-style-type: none"> <li>- A description of the Required ICs and implemented ICs should be included in the report.</li> </ul> <p>A summary of the required ICs be presented in the document. We find that a table in the following format is most useful.</p> <ul style="list-style-type: none"> <li>- Please include an IC summary table in the document (example table provided)</li> </ul> <p>For this Site, the Facility might consider updating the existing Table 10 to include the information required.</p> <ul style="list-style-type: none"> <li>- The Review should address whether maps are available which depict the current conditions of the site and show the boundaries of the areas which do not allow for UU/UE and the areas subject to the land use controls will be developed. If not, then a statement should be made that they will be developed.</li> <li>- Additionally, EPA prefers that the FYR Report describe a status of each element which is described below or explain that the information will be included in a supplement to the FYR or a document dedicated to ICs. Describe each Element below:</li> </ul>	<p>A new Section (4.4 INSTITUTIONAL CONTROLS ) has been added to the text, and a comprehensive set of figures and deeds have been included as reference material in Attachment 12. Section 4.4 addresses all comments received relative to ICs. Issues and recommendations for followup are included in Section 4.4.5. These issues and recommendations were summarized in the Tables in Sections 8 and 9.</p>	

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U.S. EPA Region 5 ICC	4	<p>Institutional Controls Plan Elements  Implemented or Planned ICs  Describe whether ICs have been implemented (e.g. restrictive covenant is recorded, ordinance is in-place.). Provide copies of implemented ICs</p> <p>Physical Area  Map: Attach map of the areas that do not support UU/UE under current conditions (e.g. landfill as constructed, industrial use cleanup standards)  Evaluate or confirm that the physical description of the current non UU/UE areas is covered by the ICs (all proprietary controls and governmental controls) –usually by comparing IC map to UU/UE map</p> <p>Objective  Describe the objective(s) of ICs (e.g. prohibit interference with landfill cap, groundwater plume) under current conditions  Review existing ICs to determine if all objectives are included in an IC and that IC embodies the appropriate objective/restriction. (e.g. Does the restrictive covenant state that groundwater use is prohibited)</p> <p>Long Term Stewardship  Mechanism &amp; party responsible for inspecting and monitoring compliance with land use restrictions and groundwater restrictions (e.g. O&amp;M Plan, ICIAP (Institutional Control Implementation and Assurance Plan), Land Use Control Implementation Plan (federal facility), other entity's plan), contingency actions, governmental procedures  Explore use of communications plan (included in O &amp; M Plan or other entity's plan) ;  Explore use of State's One Call System (included in O &amp; M Plan or other entity's plan)</p> <p>If the information for the elements described above is not currently available, then a summary of what is currently known should be provided and a statement that additional IC evaluation activities will be undertaken. EPA, Region 5, promotes the use of an IC study and Work Plan which addresses various IC evaluation activities. Below is generally the scope of the work to demonstrate that the ICs are in-place and effective and subject to appropriate long-term stewardship.</p> <p>Attached is a summary of the areas that should be addressed relative to the IC Study Report requirements.</p>	See above	
U.S. EPA Region 5 ICC	5	<p>Pages 3, Five Year Review Summary Form, and Section 8 on 91.</p> <p>Five Year Review Summary Form, and Section 8 on 91. ISSUES.  The current issue noted for ICs is limited to the Prologis Industrial Park; however, evaluation is needed of all the Site ICs.</p> <p>Consider adding the following Issue: The required ICs have not been fully evaluated.  A review of the institutional controls is needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the Site.</p>		

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U.S. EPA Region 5 ICC	6	<p>Pages 3 through 5, Five Year Review Summary Form, and Section 9 on Page 94.</p> <p>Recommendations and Follow-up Actions</p> <p>Consider adding the following Recommendation: IC evaluation activities are underway or will be undertaken. An IC Plan (or similar plan) will be developed within [select reasonable time frame such as six (6) months of the Five Year Review]. The Plan will incorporate the results of the evaluation activities and plan for additional IC activities as needed including planning for long- term stewardship.</p>	<p>The documentation of adherence to ICs has been identified as an issue during the FYR and Specific recommendations for follow-up have been included. The materials presented in Attachment 12 can be used as the basis for a stand-alone plan to track and document the adherence to the ICs during the subsequent FYR period. The Five Year Review Summary Form, and Section 9 have been updated to convey this information.</p>	
U.S. EPA Region 5 ICC	7	<p>Protectiveness Statement found on pages 1 through 3, Five Year Review Summary Form; and Pages 95-96.</p> <p>Also, U.S. EPA, Region 5, prefers the following verbiage in the protectiveness statement to address the role of ICs for long-term protectiveness:</p> <p>Long-term protectiveness requires compliance with effective ICs (or Land Use Controls). Compliance with effective ICs will be ensured by conducting additional IC evaluation activities to ensure that effective ICs have been implemented and that the ICs are maintained, monitored and enforced via long-term stewardship as well as maintaining the site remedy components. Since the required ICs have not been fully evaluated, a review of the institutional controls is needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the Site.</p>	<p>The required ICs have been more fully evaluated in response to your comment, as described in the response to Comment 6.</p> <p>In addition, the Long Term protectiveness statements in the Summary Form on Pages 5 and 6 and in Section 10 on pages 109 and 110 have been modified to include the following verbiage:</p> <p>Long-term protectiveness requires compliance with effective ICs (or Land Use Controls). IC evaluation activities will be developed to ensure that effective ICs are implemented and that the ICs are maintained, monitored and enforced via long-term stewardship as well as maintaining the site remedy components. Annual review and reporting of the institutional controls will be needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the site.</p>	

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U.S. EPA Region 5 ICC	8	Technical Assessment , “Question A, Is the Remedy functioning as intended by the Decision Document?” found on Pages 62, 66, 69, 71, 75, 80, 83, 86, 88, 90 and 91.	Consider adding the following language: “Effective ICs must be implemented, monitored, maintained and enforced to assure that the remedy is functioning as intended with regard to the ICs and to ensure long-term protectiveness. To that end, IC evaluations will be undertaken or are underway to ensure long-term protectiveness.”	The following verbiage has been added to the answers for the referenced questions on pages 72, 75, 78, 81, 84, 87, 92, 96, 98, 101, 103, and 104.  “ICs must continue to be monitored, maintained and enforced to assure that the remedy is functioning as intended with regard to the ICs and to ensure long-term protectiveness. To that end, recommendations to enhance implementation of institutional controls to ensure long-term protectiveness have been made in Section 4.4.5.”  Additional language referencing the likely ICs for land that will be transferred to the Forestry Service or to JADA has also been included for property that has not yet been transfered.
U.S. EPA Region 5 ICC	9	9. Technical Assessment , “Question B, Are the .... RAOs still valid?” found on Pages 63, 66, 69, 72, 75, 80, 84, 86, 89, 91 and 92.	Include information regarding the assumed current and future use of the property such as “the property is currently zoned for industrial use and is being used for commercial/industrial purposes. Industrial uses on adjacent parcels are not anticipated to impact the property.”	Information regarding the assumed current and future use of the property has been included in the answer to question B for each site, on pages 72, 75, 78, 81, 84, 87, 92, 96, 98, 101, 103, and 104. The RAOs are stated to remain valid in this section for each site.
U.S. EPA Region 5 ICC	10	Long- Term Stewardship (LTS)	The mechanism and plan for LTS should be clear for each area of the Site. The LTS plan should ensure that ICs are maintained and complied with in the short term and in the long term. The monitoring plan must include a schedule and an annual certification to EPA that ICs are in place and remain effective. Also, the Facility should consider whether a communication plan or use of the State’s one-call system might enhance long-term protectiveness of the remedy.	Section 4.4 has been added to address all comments received relative to ICs. Issues and recommendations for followup are included in Section 4.4.5. These issues andrecomendations were summarized in the Tables in Sections 8 and 9.  Recommendations have been made to consider whether use of the State’s one-call system can be used enhance long-term protectiveness of the remedy

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U.S. EPA Region 5 ORC	1	General  There is confusion about the deed restrictions. The properties that were transferred to the Department of Agriculture do not have deed restrictions. Since it was a transfer between two government agencies, deeds were not used. However, the Department of Agriculture was suppose to incorporate into its plans for operating the Sites restrictions on the use of the property similar to the restrictions placed in deeds used to transfer other Sites to the state of Illinois. Section 4.1.1.8 attempts to describe this process, but is out of date.  In Attachment 12 to the GOU five year review is the Land and Resource Management Plan (Prairie Plan), Amendment #1 – Establishment of Management Area 3 and Designation of Utility Corridors into MA2 (Amendment). This document issued by the USDA Forest Service provides for groundwater and soil restrictions that might affect future land uses. It also provides for annual reports.  The Amendment states that the 2004 Joliet Ammunition Plant ROD documented contamination, established clean-up standards for additional contaminants, identified by parcel and groundwater and soil restrictions that might affect future land uses. The Amendment also says that the Army ROD prohibits unrestricted exposure to soils with residual contamination and development and use of the property for residential or industrial uses and that those controls need to be in place permanently. It also says that groundwater restrictions in GMZs preclude the use or disturbance of groundwater that could cause migration of the contaminated groundwater plumes. The decisions in the 2004 ROD were implemented through the Army's Environmental Condition of Property (ECOP). The Amendment goes on to say that as a condition of the ECOP the Forest Service needs to report to other regulators annually on the status of land use and groundwater restrictions as well any land use proposals that would be, or were, affected by them. In order to implement these requirements the Forest Service decided to apply land use restrictions through prairie-wide direction and create a tracking mechanism for remediation areas of long-term concern through the establishment of Management Area 3.  <del>There is a question as to whether the Amendment is specific enough in terms of controls. This might be</del>	A number of reviewers have made comments with respect to ICs. In order to coherently address these comments a new Section (4.4 INSTITUTIONAL CONTROLS ) has been added to the text, and a comprehensive set of figures and deeds have been included as reference material in Attachment 12. Section 4.4 addresses all comments received relative to ICs. Issues and recommendations for followup are included in Section 4.4.5. These recommendations were summarized in the Tables in Sections 8 and 9.	
U.S. EPA Region 5 ORC	2	General  The Centerpoint annual reports seem inadequate (See Attachment 12). They indicate that Centerpoint, to the best of its knowledge hasn't violated any of the deed restrictions. However, there is no documentation of this. Has anyone inspected the Sites? Also are they aware of anyone else violating the deed restrictions, for example, a trespasser?	We concur. Section 4.4 addresses all comments received relative to ICs. Issues and recommendations for followup are included in Section 4.4.5. These recommendations were summarized in the Tables in Sections 8 and 9.	
U.S. EPA Region 5 ORC	3	General  There are numerous anomalies and/or anachronisms in the SOU and GOU reports. Typically one sentence will say the work at a Site is completed and another sentence in the same section will indicate the work is not completed at that Site.	<b>MUST READ REPORT AND LOOK FOR THESE</b>	
U.S. EPA Region 5 ORC	4	General  In the GOU report it is stated that the soils on certain parcels cannot be "ingested or have dermal contact". Are there special conditions for these sites to prevent workers at the industrial parks or landfill or visitors to DOA sites from contacting or ingesting the soils?	This comment appears to refer to the Five Year Review for the SOU. No reference to ingestion or dermal contact with soils was found in the Five Year Review for the GOU.	
U.S. EPA Region 5 ORC	5	General  It would be helpful if the sites or parcels were identified on the maps as to whether they were part of DOA property (Midwin), will ultimately be transferred to DOA, part of one of the industrial parks or the Will County Landfill, or will ultimately be transferred to one of these facilities.	Figures showing property ownership are provided in the additional material included in Attachment A12-1 through A12-3	
U.S. EPA Region 5 ORC	1	p. 1, par. 1, line 9  "address" instead of "addresses"	Text has been edited/corrected. (page 1)	

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U.S. EPA Region 5 ORC	2	p. 3, par. 5	Does Will County Landfill need to provide documentation like Centerpoint does? I believe it does.	This has been addressed as an issue, The Deed does not specify any requirements for annual reporting for the Will County Landfill Property. Recommendations have been included to request such documentation annually.
U.S. EPA Region 5 ORC	3	p. 4, par. 2	Property transferred to DOA does not have deed restrictions; it has groundwater use restrictions.	This paragraph has been clarified to address land use restrictions on USDA FS Land. (page 4)
U.S. EPA Region 5 ORC	4	p.6, par.2, line 3	space between "to" and "the"	Text has been edited/corrected. (page 6)
U.S. EPA Region 5 ORC	5	p. 9, Table 1, entry 4	"conducts"	Text has been edited/corrected (page 13).
U.S. EPA Region 5 ORC	6	p. 15, par. 4, line 6	"it" instead of "is"	Text has been edited/corrected. (page 19)
U.S. EPA Region 5 ORC	7	p. 17, par. 2:	last line, "were" instead of "was"	Text has been edited/corrected. (page 21)
U.S. EPA Region 5 ORC	8	p. 31, par. 4, line 7	"tanks"	Text has been edited/corrected. (page 36)
U.S. EPA Region 5 ORC	9	p. 45, par. 3, line 3	If M5, M8 or M13 were transferred to the DOA then use the words "groundwater use restrictions" instead of "deed restrictions for each property being transferred to DOA. If property was transferred to Centerpoint then "deed restrictions" is proper.	Transferred property in M5, M8 or M13 was transferred to non-federal entities.
U.S. EPA Region 5 ORC	10	p. 46, Table 19 , footnote 3	Was M13 remediated or not? Was the remaining parcel of M13 ever transferred? The footnote is confusing.	The footnote has been clarified, on page 51 as follows:  3. A portion of Site M13 has been transferred the State of Illinois. The parcel of land containing the capped M13 landfill (containing SRU6 soils), remains under the ownership of the U.S. Army.

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U.S. EPA Region 5 ORC	11 p. 60, par. 2, line 4	What evidence is there that institutional controls at L1 are effective? Who owns this parcel now? Say "...institutional controls should be effective..."	(7.2.1.1) Site L1 is still owned by the U.S. Army ; however the GMZ extends beond the site, and onto property owned by the USDA FS. USDA FS land within the GMZ is subject to the land use restrictions stipulated in The Prairie Pland (as amended). The Monitoring and Evaluation Report Fiscal Year 2007 documents the compliance and effectiveness of the ICs for groundwater.  The text has been clarified on page 79 as follows: ICs are effective in preventing exposure to contaminated groundwater in USDA Forestry Service property located within the GMZ. Future ICs are likely to be similar to those in place on other USDA Forestry Service land and should be effective for Site L1 when it is transferred to the USDA Forestry Service.	
U.S. EPA Region 5 ORC	12 p. 62, par 2, line 5	It appears as if the contaminated groundwater discharges into Prairie Creek. Wouldn't it then leave the boundary of the GMZ?	7.2.2.1 - The referenced text describes modeling results which are based on conservative assumptions. No RG exceedances for RDX have occurred at surface water location SW555, the point of compliance for the GMZ.	
U.S. EPA Region 5 ORC	13 p. 62, par. 4, line 6	It says "metals should be analyzed for one year after SOU RA activities..." Has this been done? If not, then this should be listed in the table concerning follow up actions?	The monitor well referenced at this location MW501, has not been sampled since 1999. Recommendations to sample MW501 for metals for two consecutive semiannual sampling events have been included on page 81.	
U.S. EPA Region 5 ORC	14 p. 62, par. 5, line 3	See no. 11.	7.2.2.1 - The text has been changed to be more accurate, as follows on page 82: All RA activities for SRUs have been completed at L2. It is anticipated that ICs applicable to MA3 Area property will be effective in preventing exposure to contaminated groundwater when Site L2 is transferred from the U.S. Army to the USDA FS.	
U.S. EPA Region 5 ORC	15 p. 64, par. 6, line 10	"has"	Text has been edited/corrected on page 84.	
U.S. EPA Region 5 ORC	16 p. 65, par. 4, line lines 6-8	This is a to do item, metals analysis, and should be added to the follow-up table.  16a. 7.2.3.1, p. 66, par. 1, lines 3-4: say "...institutional controls should be effective..."	The referenced monitor wells at this location MW410, MW411, MW630, and MW631 have not been sampled since 2003. Recommendations to sample these wells for metals for two consecutive semiannual sampling events have been included on page 85.	

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U.S. EPA Region 5 ORC	17 p. 69, par. 1	- Is L14 owned by the DOA? Lines 3-4: say, "institutional controls should be effective..."	7.2.4.1 - The text has been changed to be more accurate, as follows on page 88: All RA activities for SRUs have been completed at L14. It is anticipated that ICs applicable to MA3 Area property will be effective in preventing exposure to contaminated groundwater when Site L14 is transferred from the U.S. Army to the USDA FS.	
U.S. EPA Region 5 ORC	18 p. 71, par. 6, lines 3-4	Delete part of sentence and say "and institutional controls should be effective in preventing exposure to contaminated groundwater."	7.3.1.1 - The text has been changed to be more accurate, on page 91 as follows: All RA activities for SRU 6 soil have been completed at M1. It is anticipated that ICs applicable to MA3 Area property will be effective in preventing exposure to contaminated groundwater when Site M1 is transferred from the U.S. Army to the USDA FS.	
U.S. EPA Region 5 ORC	19 7.3.1.3, page 73, par. 1, lines 4 and 5	Delete part of sentence and say "Groundwater use controls should adequately prevent exposure to the groundwater within the DMZ."	7.3.1.3 - The text has been changed to be more accurate, on page 96 as follows: It is anticipated that ICs applicable to MA3 Area property will be effective in preventing exposure to contaminated groundwater when Site M1 is transferred from the U.S. Army to the USDA FS.	
U.S. EPA Region 5 ORC	20 7.3.3.1, p. 76, par.5, line 2	May 2008? Instead of 2007.	The text has been changed on Page 100 to May 2008	
U.S. EPA Region 5 ORC	21 7.3.3.1, p. 77, par. 6, line 1	., typo "has to"???; par. 7, lines 2 and 3, typos, should say "... has decreased to ...and has increased to 21,000...The concentration of 2-NT has decreased to....	Text has been edited/corrected.	
U.S. EPA Region 5 ORC	22 7.3.3.1, p. 80, par. 1	missing word "very ...? Concentrations;" par. 4: say "...institutional controls should be effective..."	7.3.3.1 - The text has been changed to be more accurate, on Page 103 as follows: All of the detections except 1,2-DCE at well MW320R were one-time detections at very low concentrations. All RA activities for SRUs have been completed at M6 and ICs should be effective in preventing exposure to contaminated groundwater when the property is transferred from the U.S. Army if they are consistent with those required in the initial deed documents for previous non-federal transfers in the MFG Area.	



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U.S. EPA Region 5 ORC	23	7.3.3.3, p. 81, par. 2, line 4	say "Groundwater use controls should adequately prevent..."	<p>The text has been changed to be more accurate, on page 104 as follows:</p> <p>ICs should be effective in preventing exposure to contaminated groundwater when the property is transferred from the U.S. Army if they are consistent with those required in the initial deed documents for previous non-federal transfers in the MFG Area.</p>	

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EMCX Geologist Sam Bass	1 Page 4, GRU2	The text here states all of the RAOs have been fulfilled for Site M8. Is monitoring still being performed? If so, is there a recommendation to discontinue monitoring at this site? Please clarify in the report. This also applies to Section 10.2 on page 95.	The text has been clarified on page 5 to indicate that the RAOs have been fulfilled for the SOU. There is no recommendation to discontinue groundwater monitoring at this time	
EMCX Geologist Sam Bass	2 Pages 8 – 13,	Table 1General comment. Because separate reports are issued for soils and ground water operable units, recommend the chronology clarify whether Final Closure Reports were submitted for a soil site or a ground water site. For example, on page 11 it is noted that a Final Closure Report was submitted for Site M7. Site M7 is also included in GRU2 and has a ground water component, so the report should clarify that the Closure Report only applies to the soil portion of the site.	Reference has been made to SOU or GOU, as appropriate, for all closure reports listed in Table 1 (pages 12-17).	
EMCX Geologist Sam Bass	3 Section 3, General comment	The report should describe how the remedial goals were derived for ground water contaminants. For example, the MCL for antimony is 6 µg/L yet the remedial goal is 24 µg/L. Iron is a nutrient, so it is difficult to understand how it was selected as a Chemical of Concern. Finally, the report should note whether naturally-occurring background concentrations of the metals were considered in determining cleanup levels, and why maximum detected concentrations are being compared to remedial goals rather than using the 95% upper confidence limit (95% UCL) on the mean concentration (or some other statistical parameter). The 95% UCL is typically used as the exposure point concentration for ground water in determining whether a hazard exists, so it is inconsistent to use maximum detected concentrations to determine if cleanup goals have been reached. Refer to Section 2.2.5 of EPA 230-R-92-014, Methods For Evaluating The Attainment of Cleanup Standards, Volume 2: Ground Water, for more detail.	A brief discussion of the derivation of RGs for groundwater has been added to Section 3.1.6 on page 23	
EMCX Geologist Sam Bass	4 Page 27, Section 3.2.2.3, second paragraph on page	Given that wells at Site M6 have been monitored since 1998 and there has been only a single detection of tetrachloroethylene it appears the report should include a recommendation for cessation of volatiles monitoring at GRU2 sites in general or Site M6 in particular. This would also appear to be the case for cadmium, where the single detection that was greater than remedial goals has not been confirmed or duplicated since 1998.	We concur that optimization of the long term monitoring plan could lead to significant benefits. However, recommendations of this nature are not appropriate for inclusion in the Five Year Review. Recommendations to Optimize LTM may be effected through recommendations in Annual GOU LTM Reports or through a revision to the RD/RA workplan.	
EMCX Geologist Sam Bass	5 General comment.	The document notes that the oral reference dose increased for 1,3,5-TNB. Therefore the allowable risk-based concentration and the associated remedial goal would also increase. Recommend a revised cleanup level be calculated using the new oral reference dose. Existing concentrations of 1,3,5-TNB should be compared to the revised cleanup level to determine if continued monitoring is necessary.	We concur that a revision of the remedial goal should be considered for this compound, and take this opportunity to correct the text in Attachment 14. The the oral reference dose for 1,3,5-trinitrobenzene has increased from $5 \times 10^{-5}$ to $3 \times 10^{-2}$ (not $3 \times 10^2$ ).	
EMCX Geologist Sam Bass	6 General comment	It is unclear why data from October 2007 is used to develop figures and calculations when data from May 2008 is available.	Data from May 2008 was not available when the analysis and evaluation was initiated.	

**Response to Comments**  
**Draft Final Second Five-Year Review Report Groundwater Operable Unit**  
**Joliet Army Ammunition Plant (JOAAP) Wilmington, Illinois**

Reviewer	Section/ Page No.	Reviewer Comment	Response	Date Closed
EMCX Geologist Sam Bass	7	Page 93, Table 14	<p>If all RAOs have been met at Site M8 it is unclear why failure to sample for sulfate is identified as an issue. Similarly, it is unclear why there is a recommendation to collect samples for sulfate analysis at Site M8 in Table 15 on page 94. If all RAOs have been met please reevaluate the need for identifying this as an issue and for recommending further work at Site M8.</p> <p>This issue was raised in the Previous 5 year review and does not appear to have been completed.</p> <p>Table 1 (page 4) has been clarified to indicate that the RAOs have been fulfilled for the SOU. No recommendation to discontinue groundwater monitoring at M8 has been made at this time.</p>	
EMCX Geologist Sam Bass	8	Attachment 8.	<p>The effective porosity used in the calculations appears high at 33.7%. This may be appropriate for total porosity but not for effective porosity, given the relatively low permeability of soils at the site. Using a lower value for effective porosity will increase the seepage velocity, which is more conservative. Use of the higher porosity is also inconsistent with the conservative assumption of a retardation factor of unity (no retardation).</p> <p>The effective porosity values used in calculations were the same as those used in evaluations presented in the previous Five Year Review, in order to provide a basis for comparison.</p>	
EMCX Geologist Sam Bass	9	General comment	<p>Many of the contaminants of concern being monitored at the sites have not been detected for at least 6 years and in many cases much longer periods of time according to the text. Yet there are no recommendations to cease ground water monitoring for the non-explosive compounds. It appears the report should have either 1) a recommendation to cease monitoring for all non-explosive compounds or 2) a recommendation for an improved monitoring well network to determine if the non-explosive compounds have just moved outside the area(s) where monitoring wells are currently installed. It may be beneficial for future five year reviews to evaluate ground water data using MAROS (Monitoring and Remediation Optimization System) or similar optimization software to determine if changes are necessary in the monitoring program.</p> <p>We concur that optimization of the long term monitoring plan could lead to significant benefits. However, recommendations of this nature are not appropriate for inclusion in the Five Year Review. Recommendations to Optimize LTM may be effected through recommendations in Annual GOU LTM Reports or through a revision to the workplan.</p>	

**Response to Comments**  
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Reviewer	Section/ Page No.	Reviewer Comment	Response	Date Closed	
Karen Rabek	1	General	The report has been changed to be in the format of the EPA Guidance for 5-Yr Reviews and is much easier to follow.	Thank You.	
Karen Rabek	2	8.0 Issues, Page 93	First issue – Damaged well casings and concrete pads would affect protectiveness. Change to “Y”. Second issue - Damaged well casings and missing locks would affect protectiveness. Change to “Y”.	The "Affects Future Protectiveness" cloumn for both of these issues has been changed to "Y" on page 118	



**Attachment 16**  
Comments received from the Community

## **Attachment 16**

### **Comments Received from the Community**

A public notice of the availability of the Five Year Review and associated public comment process was posted in the daily Joliet Herald News on April 19, 2009 and the weekly Wilmington, Illinois Free Press Advocate on April 22, 2009. No comments were received from the Community during the public comment period. Copies of the public notice are included as **Attachment 2**.